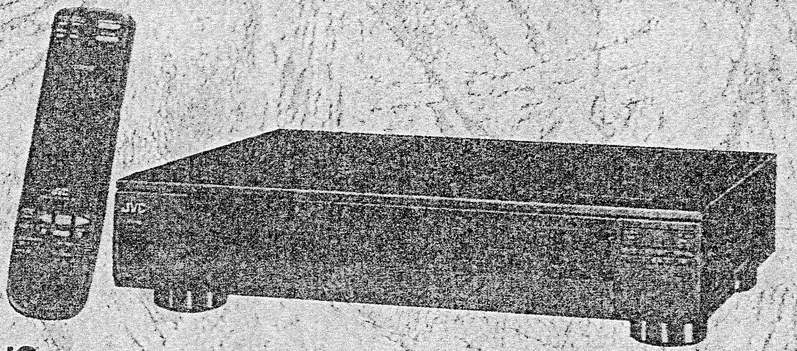
JVC

SERVICE MANUAL

VIDEO CASSETTE RECORDER

HR-D880E/EG



SPECIFICATIONS

GENERAL

Power requirement	AC 220 – 240 V∿, 50/60 Hz
Power consumption	34 W
Temperature	5°C to 40°C (Operating)
	–20°C to 60°C (Storage)
Operating position	Horizontal only
Dimensions (WxHxD)	435 x 107 x 345 mm
Weight	6.0 kg
Format	VHS PAL standard
Tape width	12.65 mm
Tape speed (SP)	23.39 mm/sec
Tape speed (LP)	11.70 mm/sec
Maximum recording time (SP)	240 min. with E-240 video cassette
(LP)	480 min. with E-240 video cassette

VIDEO

Signal system	PAL colour and CCIR monochrome signals, 625 lines/50 fields
Recording system	Rotary two-head helical scan system with slant double-azimuth combination video heads
Input	0.5 to 2.0 Vp-p, 75 ohms, unbalanced
Output	1.0 Vp-p, 75 ohms, unbalanced
Signal-to-noise ratio	43 dB (Rohde & Schwarz noise meter)
Horizontal resolution	250 lines

AUDIO

Input	Mic:–67 dBs, high impedance, unbalanced
	AUDIO IN connector (RCA x 2): –8 dBs, 50 k-ohms, unbalanced
	AUDIO/VIDEO socket (21-pin Peri connector):–3.8 dBs, (CENELEC standard), 10 k-ohms, unbalanced
Output	AUDIO OUT connector (RCA x 2): –6 dBs, high-impedance load less than 1 k-ohm, unbalanced (100 k-ohms, load)
	AUDIO/VIDEO socket (21-pin Peri connector):–3.8 dBs, (CENELEC standard), high-impedance load less than 1 k-ohm, unbalanced

NORMAL AUDIO

Recording system	Longitudinal track
No. of audio channels	1 (monaural)
Frequency range	70 Hz to 10,000 Hz

Hi-Fi AUDIO

Recording system	Deep-layer recording system conforming to stereo Hi-Fi VHS standard
No. of audio channels	2 Hi-Fi audio channels
Frequency response	20 Hz to 20,000 Hz
Dynamic range	More than 90 dB
Wow and flutter	Less than 0.005% WRMS

TUNER

Tuning system	Frequency synthesized tuner	
TV channel storage capacity	48 positions (+ AUX position "AU")	
Channel coverage	VHF	47 – 111 MHz
		111 – 300 MHz
		302 – 470 MHz (Hyper band for PAL)
	UHF	470 – 862 MHz
Aerial output	UHF channel 36 (adjustable 32 – 40)	

TIMER

Clock reference	Quartz-crystal
Programme capacity	1-year/8-programme timer
Memory backup time	60 min.

ACCESSORIES

Provided accessories	Aerial cable Infrared remote control unit "R6" battery x 2
Optional accessories (EG)	VPV adapter VU-V120E VPT adapter VU-V140E
Optional accessories (E)	VPS adapter VU-V110E VPV adapter VU-V120E VPS/VPV adapter VU-V100E VPT adapter VU-V140E VPS/VPT adapter VU-V150E

Specifications shown are for SP mode unless otherwise specified.
Design and specifications subject to change without notice.

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No. 82311
June 1992

NOTE: For a technical description, please refer to Technical Guide VTG82063 General.

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1. The Instructions shown pertain specifically to the Model HR-D880E/EG. For detailed descriptions, be sure to consult the Instruction booklets of the other Models.
2. The following table lists the differing points between Models (suffixed HR-D880E and HR-D880EG) in this series.

Model Item			HR-D880EG	HR-D880E
TV TUNER	Channel coverage	VHF	47 - 111 MHz	← *1)
			111 - 300 MHz	← *1)
			302 - 470 MHz	← *1)
		UHF	470 - 862 MHz	← *1)
TIMER	Memory back-up time		60 min	60 min
	VPS		Built-in	Option (VU-V110E)
TELETEXT	VPV		Option (VU-V120E) *2)	Option (VU-V100E) *3)
	VPT (with TOP)		Option (VU-V140E) *2)	Option (VU-V150E) *3)
PACKING CASE			PQ33955-17	PQ33955-18
INST SHEET (RCU)			PU61342-4	—
WARRANTY CARD			BT-20114	—
FRONT PANEL ASSY			PQ11392B-1	PQ11392C-1
DOOR ASSY			PQ11423B	PQ11423C

Notes: ***1) ← The same as model at left.*** ***3) VU-V100E/VU-V150E with VPS***
2) VU-V120E/VU-V140E without VPS

Important Safety Precautions

Prior to shipment from the factory, JVC products are strictly inspected to conform with the recognized product safety and electrical codes of the countries in which they are to be sold. However, in order to maintain such compliance, it is equally important to implement the following precautions when a set is being serviced.

● Precautions during Servicing

1. Locations requiring special caution are denoted by labels and inscriptions on the cabinet, chassis and certain parts of the product. When performing service, be sure to read and comply with these and other cautionary notices appearing in the operation and service manuals.

2. Parts identified by the ⚠ symbol and shaded (▨) parts are critical for safety.
   Replace only with specified part numbers.
   Note: Parts in this category also include those specified to comply with X-ray emission standards for products using cathode ray tubes and those specified for compliance with various regulations regarding spurious radiation emission.

3. Fuse replacement caution notice.
   Caution for continued protection against fire hazard.
   Replace only with same type and rated fuse(s) as specified.

4. Use specified internal wiring. Note especially:
   1) Wires covered with PVC tubing
   2) Double insulated wires
   3) High voltage leads

5. Use specified insulating materials for hazardous live parts. Note especially:
   1) Insulation Tape
   2) PVC tubing
   3) Spacers
   4) Insulation sheets for transistors
   5) Barrier

6. When replacing AC primary side components (transformers, power cords, noise blocking capacitors, etc.) wrap ends of wires securely about the terminals before soldering.

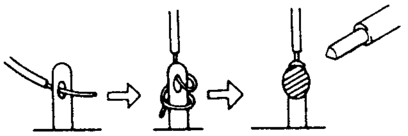


Fig. 1

7. Observe that wires do not contact heat producing parts (heatsinks, oxide metal film resistors, fusible resistors, etc.)

8. Check that replaced wires do not contact sharp edged or pointed parts.

9. When a power cord has been replaced, check that 10–15 kg of force in any direction will not loosen it.

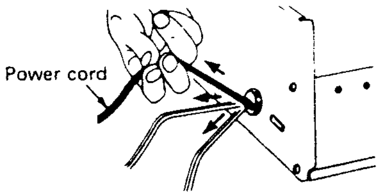


Fig. 2

10. Also check areas surrounding repaired locations.

11. Products using cathode ray tubes (CRTs)
    In regard to such products, the cathode ray tubes themselves, the high voltage circuits, and related circuits are specified for compliance with recognized codes pertaining to X-ray emission. Consequently, when servicing these products, replace the cathode ray tubes and other parts with only the specified parts. Under no circumstances attempt to modify these circuits. Unauthorized modification can increase the high voltage value and cause X-ray emission from the cathode ray tube.

12. Crimp type wire connector
    In such cases as when replacing the power transformer in sets where the connections between the power cord and power transformer primary lead wires are performed using crimp type connectors, if replacing the connectors is unavoidable, in order to prevent safety hazards, perform carefully and precisely according to the following steps.
    1) **Connector part number** : E03830-001
    2) **Required tool** : Connector crimping tool of the proper type which will not damage insulated parts.
    3) **Replacement procedure**
       (1) Remove the old connector by cutting the wires at a point close to the connector.
       Important : Do not reuse a connector (discard it).

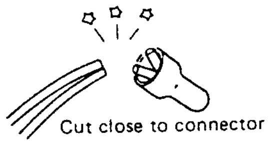


Fig. 3

(2) Strip about 15 mm of the insulation from the ends of the wires. If the wires are stranded, twist the strands to avoid frayed conductors.

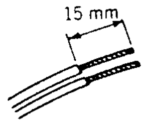


Fig. 4

(3) Align the lengths of the wires to be connected. Insert the wires fully into the connector.

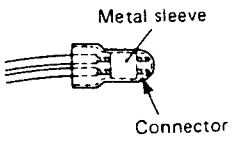


Fig. 5

(4) As shown in Fig. 6, use the crimping tool to crimp the metal sleeve at the center position. Be sure to crimp fully to the complete closure of the tool.

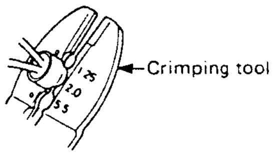


Fig. 6

(5) Check the four points noted in Fig. 7.

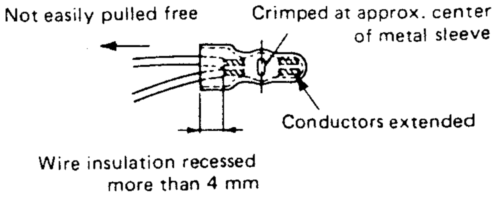

Not easily pulled free
Crimped at approx. center of metal sleeve
Conductors extended
Wire insulation recessed more than 4 mm

Fig. 7

● Safety Check after Servicing

Examine the area surrounding the repaired location for damage or deterioration. Observe that screws, parts and wires have been returned to original positions, Afterwards, perform the following tests and confirm the specified values in order to verify compliance with safety standards.

1. **Insulation resistance test**
   Confirm the specified insulation resistance or greater between power cord plug prongs and externally exposed parts of the set (RF terminals, antenna terminals, video and audio input and output terminals, microphone jacks, earphone jacks, etc.). See table 1 below.

2. **Dielectric strength test**
   Confirm specified dielectric strength or greater between power cord plug prongs and exposed accessible parts of the set (RF terminals, antenna terminals, video and audio input and output terminals, microphone jacks, earphone jacks, etc.). See table 1 below.

3. **Clearance distance**
   When replacing primary circuit components, confirm specified clearance distance (d), (d') between soldered terminals, and between terminals and surrounding metallic parts. See table 1 below.

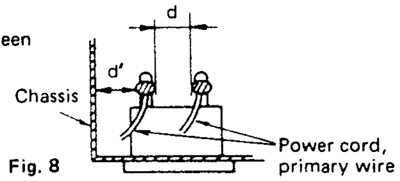


Fig. 8

4. **Leakage current test**
   Confirm specified or lower leakage current between earth ground/power cord plug prongs and externally exposed accessible parts (RF terminals, antenna terminals, video and audio input and output terminals, microphone jacks, earphone jacks, etc.).
   Measuring Method: (Power ON)
   Insert load Z between earth ground/power cord plug prongs and externally exposed accessible parts. Use an AC voltmeter to measure across both terminals of load Z. See figure 9 and following table 2.

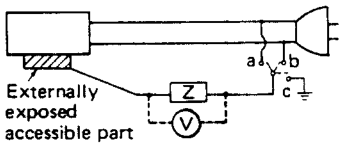


Fig. 9

5. **Grounding (Class I model only)**
   Confirm specified or lower grounding impedance between earth pin in AC inlet and externally exposed accessible parts (Video in, Video out, Audio in, Audio out or Fixing screw etc.).
   Measuring Method:
   Connect milli ohm meter between earth pin in AC inlet and exposed accessible parts. See figure 10 and grounding specifications.

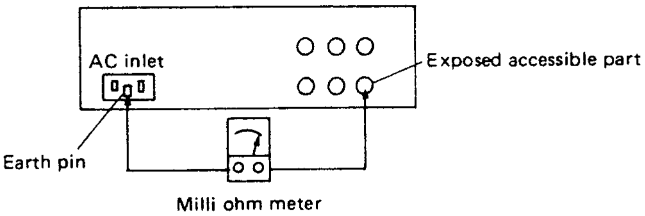


Fig. 10

Grounding Specifications

Region	Grounding Impedance (Z)
USA & Canada	Z ≦ 0.1 ohm
Europe & Australia	Z ≦ 0.5 ohm

AC Line Voltage	Region	Insulation Resistance (R)	Dielectric Strength	Clearance Distance (d), (d')
100 V	Japan	R ≧ 1 MΩ/500 V DC	AC 1 kV 1 minute	d, d' ≧ 3 mm
100 to 240 V			AC 1.5 kV 1 minute	d, d' ≧ 4 mm
110 to 130 V	USA & Canada	–	AC 900 V 1 minute	d, d' ≧ 3.2 mm
110 to 130 V 200 to 240 V	Europe & Australia	R ≧ 10 MΩ /500 V DC	AC 3 kV 1 minute (Class II) AC 1.5 kV 1 minute (Class I)	d ≧ 4 mm d' ≧ 8 mm (Power cord) d' ≧ 6 mm (Primary wire)

Table 1 Specifications for each region

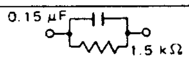
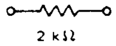
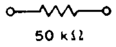
AC Line Voltage	Region	Load Z	Leakage Current (i)	a, b, c
100 V	Japan	1 kΩ	i ≦ 1 mA rms	Exposed accessible parts
110 to 130 V	USA & Canada	 0.15 µF 1.5 kΩ	i ≦ 0.5 mA rms	Exposed accessible parts
110 to 130 V 220 to 240 V	Europe & Australia	 2 kΩ	i ≦ 0.7 mA peak i ≦ 2 mA dc	Antenna earth terminals
		 50 kΩ	i ≦ 0.7 mA peak i ≦ 2 mA dc	Other terminals

Table 2 Leakage current specifications for each region

Note: These tables are unofficial and for reference only. Be sure to confirm the precise values for your particular country and locality.

INSTRUCTIONS

Safety Precautions

The rating plate and the safety caution are on the rear of the unit.

WARNING — DANGEROUS VOLTAGE INSIDE
WARNING: TO PREVENT FIRE OR SHOCK HAZARD, DO NOT EXPOSE THIS UNIT TO RAIN OR MOISTURE.

IMPORTANT

Connection to the mains supply plug in the United Kingdom.

Do not make any connection to the Larger Terminal coded E or Green. The wires in the mains lead are coloured in accordance with the following code:

Blue to N (Neutral) or Black
Brown to L (Live) or Red

If these colours do not correspond with the terminal identifications of your plug, connect as follows:
Blue wire to terminal coded N (Neutral) or coloured Black.
Brown wire to terminal coded L (Live) or coloured Red.
If in doubt — consult a competent electrician.

CAUTION

- When you are not using the recorder for a long period of time, it is recommended that you disconnect the power cord from the AC outlet.
- Dangerous voltage inside. Refer internal servicing to qualified service personnel. To prevent electric shock or fire hazard, remove the power cord from the AC outlet prior to connecting or disconnecting any signal lead or aerial.

Omkopplaren OPERATE på denna apparat är sekundärt kopplad och skiljer inte apparaten från nätet i läge OPERATE OFF.

The OPERATE button does not completely shut off mains power from the unit, but switches operating current on and off.

BEMAERK: I stilling OFF er apparatet stadig forbundet med lysnettet. Hvis det ønskes fuldstændig afbrudt skal netledningen trækkes ud.

This unit is produced to comply with Directives 76/889/EEC, 82/499/EEC, 87/308/EEC and Standard IEC Publ. 65.

IMPORTANT:
Please read the "Precautions" section of this instruction manual before installing or operating the recorder.

WARNING

There are two different types of SECAM colour systems: SECAM-L, used in FRANCE (also called SECAM-West), and SECAM-B, used in Eastern European countries (also called SECAM-East).

1. This recorder can also receive SECAM-B colour television signals for recording and playback.
2. Recordings made of SECAM-B television signals produce monochrome pictures if played back on a video recorder of SECAM-L standard, or do not produce normal colour pictures if played back on a PAL video recorder with SECAM-B system incorporated (even if the TV set is SECAM-compatible).
3. SECAM-L prerecorded cassettes or recordings made with a SECAM-L video recorder produce monochrome pictures when played back with this recorder.
4. This recorder cannot be used for the SECAM-L standard. Use a SECAM-L recorder to record SECAM-L signals.

IMPORTANT: It may be unlawful to record or play back copyrighted material without the consent of the copyright owner.

Video tapes recorded with this video recorder in the LP (Long Play) mode cannot be played back on a single-speed video recorder.

- Only cassettes marked "VHS" can be used with this video recorder.
- HQ VHS is compatible with existing VHS equipment.

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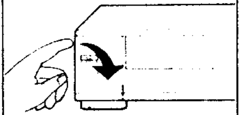
How To Use This Instruction Manual
This instruction manual has been designed with both new and experienced users in mind. The first half offers detailed, step-by-step instructions for setting up your video recorder, and on using its basic functions. The second half provides instructions on the many other functions available on your video recorder. So just by following the instructions on the "Getting Started" and "Basic Operation" sections of this manual, you can master all of your recorder's basic functions, including timer-recording. Once you're sufficiently familiar with basic operation, or if you're already an experienced video user, you can move on to the more advanced functions introduced on the following pages. Related features have all been clustered together for easy reference, and their categories (playback, recording, timer, etc.) are easily recognisable by the symbol appearing in the page header. If you ever need to refer to another page for instructions or information, you will be told so by a ☞ mark pointing to the page number. Remember, you must use your video recorder correctly to fully enjoy it. Please use this manual effectively. It's the surest and quickest way to unlock the full potential of your new JVC video recorder.

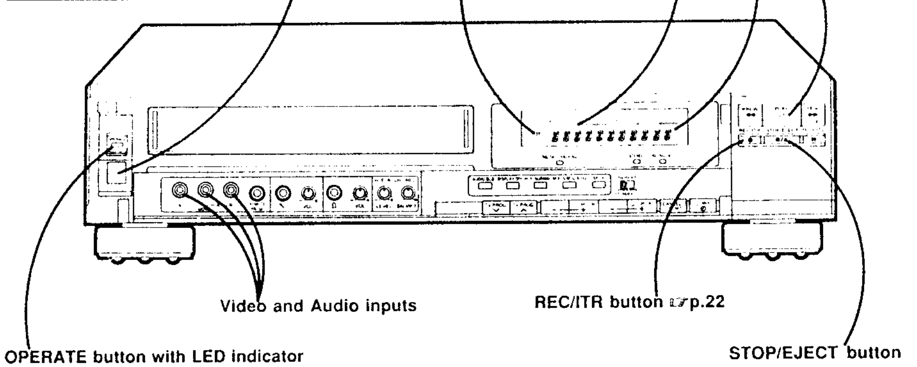
This instruction manual covers two model versions: "EG" and "E". Be sure to check which model you have purchased.
EG: VPS decoder built-in.
E: VPS decoder not built in. You must connect an optional adapter to take advantage of VPS service. ☞p.30

Controls, Indicators, And Connectors

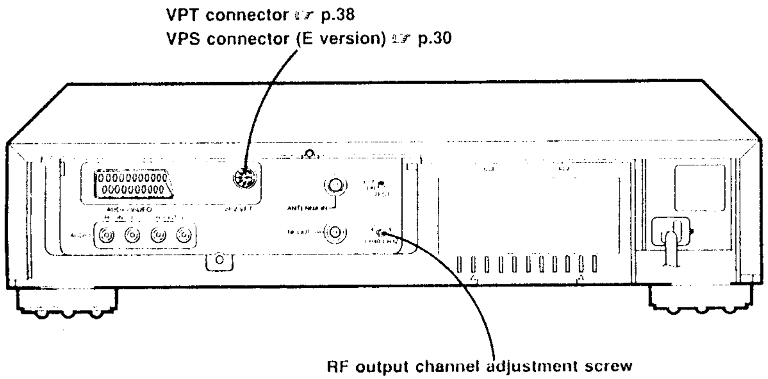
Front Panel

To open the front panel cover, pull forward with finger.



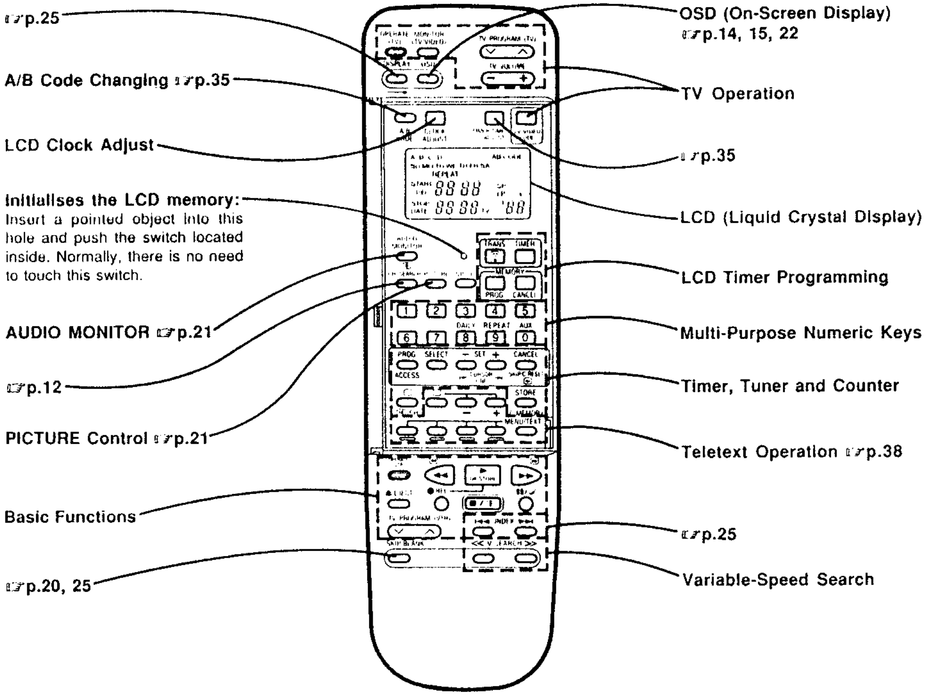

Audio level indicators
Infrared beam sensor window
■ Point the remote control at this.
Message display panel ☞p.14, 39
"Cassette loaded" indicator
PLAY button
Video and Audio inputs
REC/ITR button ☞p.22
OPERATE button with LED indicator
STOP/EJECT button

Back Panel


VPT connector ☞ p.38
VPS connector (E version) ☞ p.30
RF output channel adjustment screw

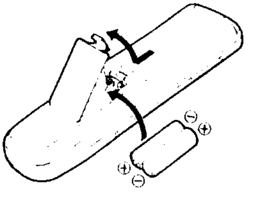
Wireless Remote Control

Open the remote's cover to access the buttons under the cover.


☞p.25
A/B Code Changing ☞p.35
LCD Clock Adjust
Initialises the LCD memory:
Insert a pointed object into this hole and push the switch located inside. Normally, there is no need to touch this switch.
AUDIO MONITOR ☞p.21
☞p.12
PICTURE Control ☞p.21
Basic Functions
☞p.20, 25
OSD (On-Screen Display) ☞p.14, 15, 22
TV Operation
☞p.35
LCD (Liquid Crystal Display)
LCD Timer Programming
Multi-Purpose Numeric Keys
Timer, Tuner and Counter
Teletext Operation ☞p.38
☞p.25
Variable-Speed Search

Installing Batteries

1. Open the battery compartment cover.
2. Insert 2 "R6"-size batteries (provided) in the correct directions.
3. Replace the cover.



NOTE:
Some buttons have additional labels (mostly pictograms) for teletext operations. You will find instructions for these in the Instruction Manual of the teletext adapter.

How To Use

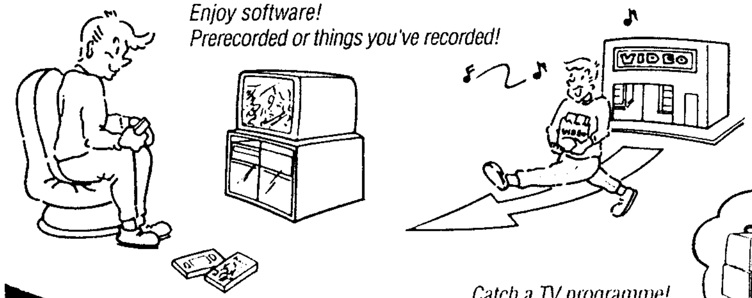
The remote control can operate most of your video recorder's functions, as well as basic functions of TV sets of JVC and other brands. ☞p.37

- Point the remote control toward the sensor window.
- The maximum operating distance of the remote control is about 8 m.

Getting To Know Your Video Recorder

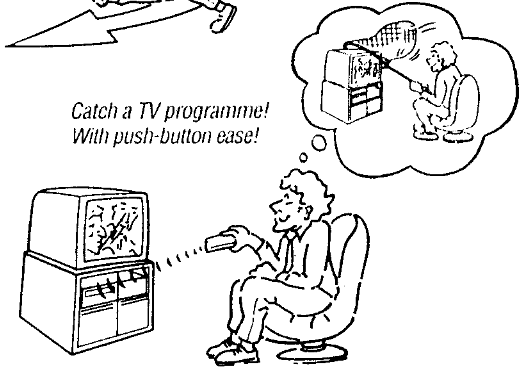
The 3 Basic·Ways Of Using Your Video Recorder

Enjoy software!
Prerecorded or things you've recorded!



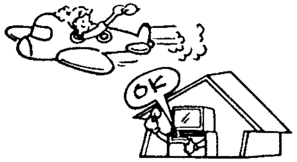
Playback

With the video recorder properly hooked-up to your TV set, viewing videos is as easy as pushing the Play button. Prerecorded VHS software is available just about anywhere, and your video recorder will let you enjoy it all. And, of course, you can enjoy those programmes you've recorded yourself too.

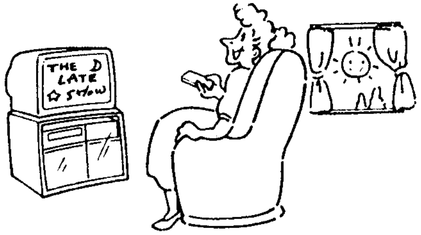

Catch a TV programme!
With push-button ease!

Recording

Just press the Record and Play buttons together on your remote control. The recorder will record whatever it is that you're watching. In other words, you can instantly "catch" a TV programme in progress to see it again later, show it to someone else, or keep it as part of your video library. Recording is possible for 4 hours in the SP (Standard Play) mode, and for 8 hours in the LP (Long Play) mode, on a single E-240 cassette.



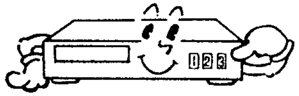
Record TV programmes while you're away.
Watch TV programmes when you want.



Timer-Recording

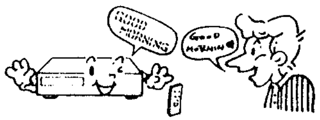
By using the built-in timer, you can set your video recorder to record TV programmes for you while you're asleep, while you're away, or while you're doing something else. Then you can watch those programmes later, whenever it's convenient, whenever you want. This is what's called "timeshifting", and now you can do it the JVC way.

Some Other Functions On Your Video Recorder



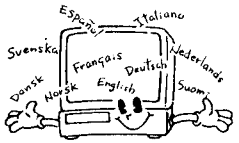
Express Timer

Makes timer programming as easy as pressing three buttons on the recorder. Start time, stop time, engage — that's all!



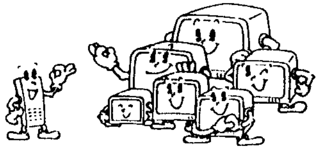
"Message" Display Panel

The video recorder "talks" to you from its message display panel. It's easy to understand what the recorder is doing at any time — a friendlier way to interact with your video deck.



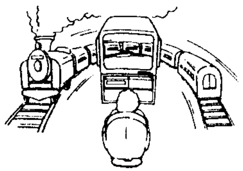
Multi-Language On-Screen Display

Ten languages to choose from. So you can check the engaged mode, program the timer, and more, while watching on-screen messages in your own language.



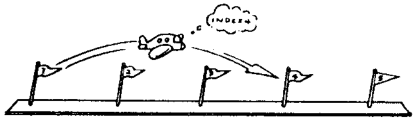
Multi-Brand-TV-Compatible Remote Control

Compatible with most major brands of televisions for basic control functions. Put an end to two-handed remote control.



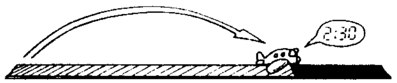
Hi-Fi Stereo Sound

Enjoy films with Hi-Fi stereo soundtracks just as you would in theatres. Use the built-in Sound-Multiplex decoder to record stereo or bilingual programmes.



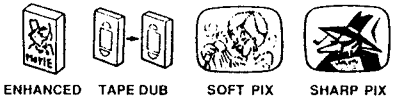
Index Search

Zooms to the index code number you specify. Easy location of index-coded programmes at the touch of a button. Index codes are automatically marked by the recorder at the beginning of each recording.



Blank Search

Lets you find the beginning of a non-recorded section automatically when you want to record on a partially-recorded tape. No more blind searching. Automatically displays the tape's remaining time too.



Picture Control

One-touch control over the type of video picture you want. Make it clearer, make it better for dubbing, make it softer, make it sharper — do it all with Picture Control.

Making The Right Connections

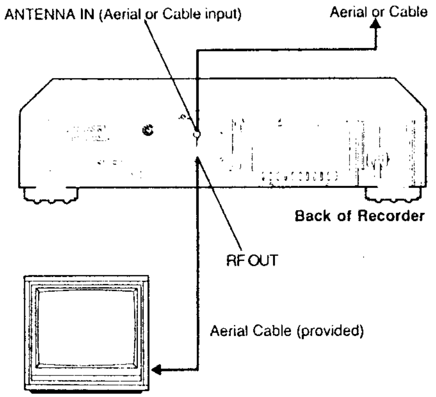
It's essential that your video recorder be properly connected. Follow these steps carefully. THESE STEPS MUST BE COMPLETED BEFORE ANY VIDEO OPERATION CAN BE PERFORMED.

A RECORDER-TO-TV CONNECTION

RF CONNECTION

For TV sets without AV input terminals:

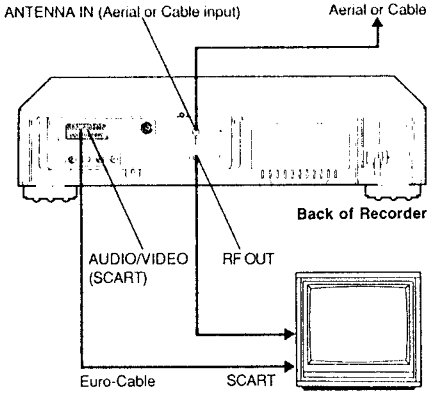
1. Connect the TV aerial cable to the recorder.
2. Connect the recorder to the TV's aerial terminal.



AV CONNECTION

For TV sets with AV input terminals:

1. Connect the aerial, recorder and TV as per "RF CONNECTION".
2. Connect the recorder to the TV's 21-pin SCART connector.



NOTE:

If your television is not stereo-capable, use the recorder's AUDIO OUT connectors to connect to an audio amplifier for Hi-Fi stereo sound reproduction.

B ADJUST VIDEO CHANNEL (UHF 36)

With an RF connection, the video recorder sends picture and sound signals through the connecting cable to your TV on UHF channel 36.

TEST SIGNAL

1. Turn on the recorder.
2. Set the TEST switch to ON.
3. Set your TV to UHF channel 36 and fine-adjust it until you bring in the two vertical white bars on the screen most clearly.
   - Your TV should be set to the channel designated for use with a video recorder or to a spare channel if there is not a specified channel.
4. Reset the TEST switch to OFF.

NOTE:

If some interference noise is seen on the screen because of broadcasts on neighbouring channels, it is necessary to shift the video channel from UHF channel 36. This is possible for UHF channels 32 through 40. Consult your JVC dealer for making this adjustment.

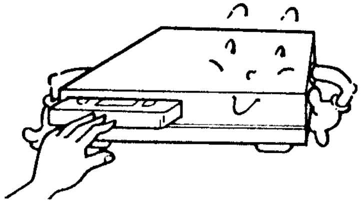
IMPORTANT:

To operate the recorder with your TV using an RF connection, it is always necessary to set your TV's channel to VIDEO CHANNEL. With an AV connection, set the TV to the VIDEO (or AV) mode.

Handling Video Cassettes

A LOADING A CASSETTE

1. Pull the front panel cover open.
2. Insert a cassette with its label side facing you.
   - If the cassette is not loaded firmly it will be ejected.



B UNLOADING A CASSETTE

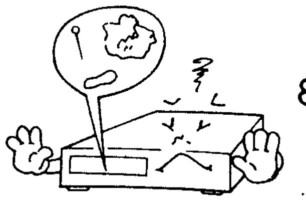
1. Press EJECT.
   - If the cassette will not eject, check to see if "TIMER" is displayed on the message display panel. If it is, press the TIMER button to turn it off.

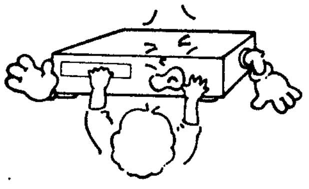
NOTES:

- Be sure to insert the cassette firmly into the slot; otherwise it will be automatically ejected.
- The automatic loading mechanism will operate only when the cassette is inserted correctly.
- When ejecting the cassette using the remote control's EJECT button with the front panel cover closed, make sure that there are no obstructions preventing the front panel cover from opening.

WARNING

- Do not insert fingers or foreign objects into the cassette loading slot since this could lead to injury or damage to the mechanism. Be especially careful with children.
- Do not try to pull out a cassette once automatic loading has started.

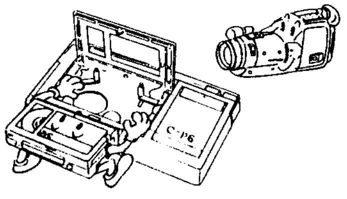




Usable Cassettes

Full-Size VHS
E-30 (SE-30**)
E-60 (SE-60**)
E-90
E-120
E-180 (SE-180**)
E-240

Compact VHS*
EC-30 (SE-C30**)
EC-45 (SE-C45**)

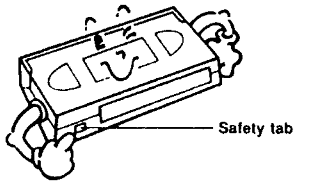


* Compact VHS camcorder recordings (PAL) can be played on this video recorder. Simply place the recorder cassette into a C-P6 Cassette Adapter and it can be used just like any full-sized VHS cassette.

** This video recorder can record on regular VHS and Super VHS cassettes. However, it will record and play back regular VHS signals only. It is not possible to play back a recorded Super VHS tape.

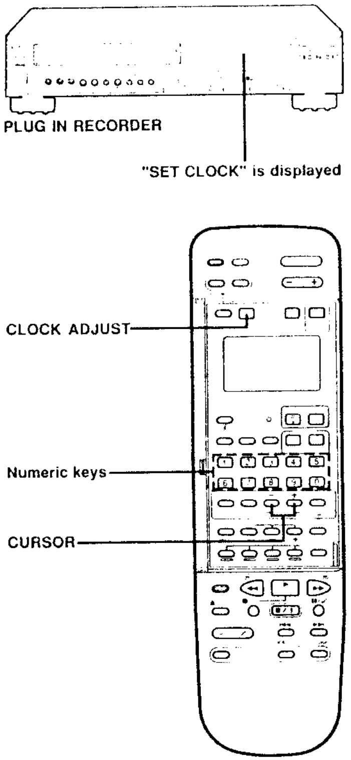
Accidental Erasure Prevention

To prevent accidental recording on a recorded cassette, remove its safety tab. To record on it later, cover the hole with adhesive tape.



Setting The Clock

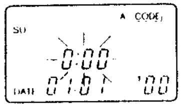
Since your video recorder bases all of its timer recording start and stop "decisions" on the time kept by its built-in clock, accurate setting of this clock is crucial for proper timer-recording results. Follow these instructions to set the remote control's LCD clock and transfer its contents to the recorder's clock.


PLUG IN RECORDER
"SET CLOCK" is displayed
CLOCK ADJUST
Numeric keys
CURSOR

A LOAD BATTERIES (☞p.5)

1 Check the LCD.

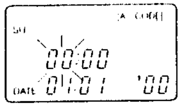
- The time display section (0:00) will be blinking.


A CODE
SU
0:00
DATE 01·01 '00

B START CLOCK SETTING

2 Press CLOCK ADJUST.

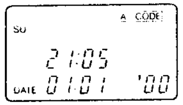
- Blinking digits will prompt you to items that can be set.


A CODE
SU
00:00
DATE 01·01 '00

C INPUT THE TIME

3 Press the appropriate numeric keys.

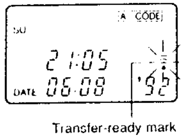
- Example: For 21:05, press 2 1 0 5. Always enter "0" before single-digit entries.


A CODE
SU
21:05
DATE 01·01 '00

D INPUT THE DAY/MONTH/YEAR

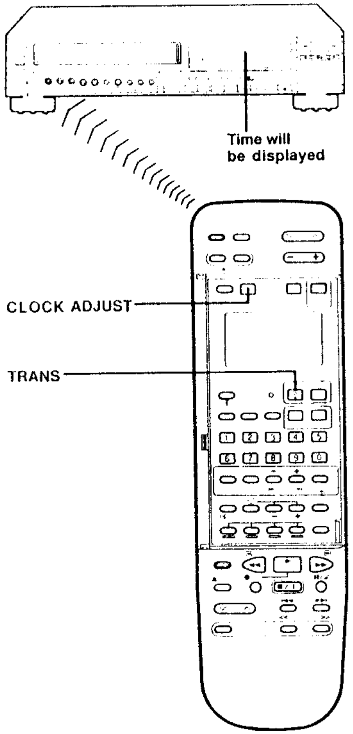
4 Press the appropriate numeric keys.

- Example: For 6th August, 1992, press 0 6 0 8 9 2. Always enter "0" before single-digit entries.
- After setting the year, the transfer-ready mark will appear and blink.


A CODE
SU
21:05
DATE 06·08 '92
Transfer-ready mark

TO MAKE CORRECTIONS

Press either CURSOR button so that the item you want to change blinks. Re-input that item. Continue to step E.


Time will be displayed
CLOCK ADJUST
TRANS

E TRANSFER AND START THE CLOCK

5 Press TRANS.

- The day of the week will automatically appear.
- The remote control's clock will start. At the same time, the set data will be transferred to the recorder.

AFTER A POWER OUTAGE

Since your video recorder has a 60-minute backup memory, it will not be affected by short power outages. If mains power is unavailable for over one hour, however, the recorder's display will revert to "SET CLOCK". In such a case, simply transfer the remote control's time to the recorder.

[1] Press CLOCK ADJUST.
[2] Press TRANS.

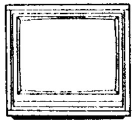
For quick "summer time" (Daylight Saving Time) adjustment, ☞p.35.

NOTES:

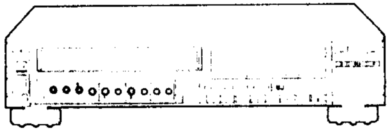
- If the day and month data is invalid (such as 31st April), the month digits are cleared automatically and the day digits will blink. Input again.
- If the year digits are automatically cleared in step D, it is possible that you have input 29th February for a non-leap year. Input again.
- When the batteries are exhausted, the time display will change to "0:00" and start blinking. Replace all the batteries and set the clock again.

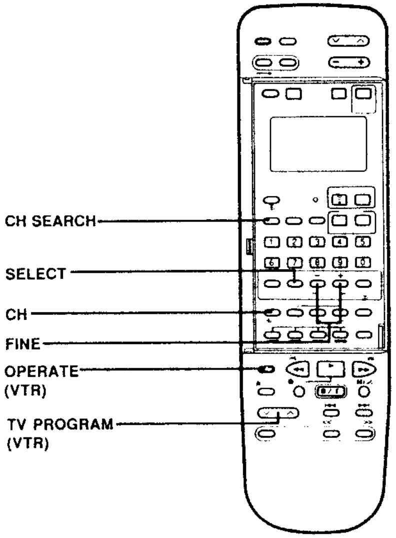
Setting The Tuner

The procedure introduced here lets you assign receivable channels in your area to channel positions on your video recorder's tuner. Once stored, these can be accessed with the TV PROGRAM (VTR) ∨/∧ button. During channel scanning, empty tuner channel positions will be skipped so you won't have to go through any "blank" channels to get to the one you want.



POWER ON;
SELECT VIDEO
CHANNEL (OR AV MODE)





A ENGAGE THE CHANNEL SET MODE

1 Press OPERATE (VTR).

PR 1

2 Press CH.

B SEARCH FOR RECEIVABLE CHANNELS

3 Press CH SEARCH.

- Automatic scanning will start at the lowest channel number, and stop when a broadcast is detected.

REAL Ch26

⬇

SKIPPED ✳

- Regular channels (Ch) are scanned first, then cable channels (CC).

C FINE-TUNE THE CHANNEL

- Check the picture on the TV screen, and fine-tune it if necessary. When the picture is clear, proceed to Step D.

4 Press SELECT.

5 Press FINE (+ or –) so that the "–" sign appears at the centre.

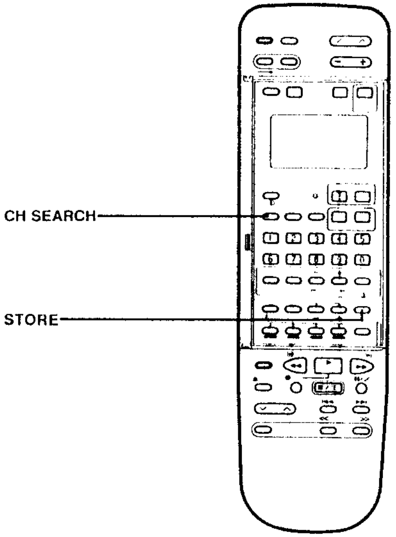
FINE- Ch26

6 Press SELECT.

D SELECT A TUNER POSITION

7 Press TV PROGRAM (VTR) to select the tuner channel position where you wish to store that broadcast.

SKIPPED ✳



E STORE THE CHANNEL

8 Press STORE.

STORED 1

⬇

REAL Ch26

- This message indicates that UHF channel 26 has been stored into the tuner's channel position 1.

F CONTINUE

9 Repeat steps B through E for other receivable channels.

TO CHANGE PRESET CHANNELS

- If you have already preset some channels, do not use the automatic Channel Search function to change or add channels. ☞ p.36.

ATTENTION

The "real channel" numbers displayed on the recorder may not correspond to channel designations in your area.

ITALY

Display	Ch	13	14	15	16	17	18	19	20	11	12
Corresponding channel		A	B	C	D	E	F	G	H	H1	H2

BELGIUM

Display	CC	01	02......10	11......20
Corresponding channels		80(M1)	81(M2)...89(M10)	90(U1)...99(U10)

SWITZERLAND

Display	CC	75	76	77
Corresponding channel		X	Y	Z

NOTES:

- If you don't want to store the broadcast detected in Step B, simply press CH SEARCH to continue automatic scanning. Search will stop as soon as another broadcast is detected.
- Be sure to proceed to the next step within 60 seconds, otherwise Channel Search will be cancelled automatically. If this happens and you wish to continue channel setting, press CH SEARCH again. Channel scanning will resume, beginning with the next receivable channel.

Mode Displays — What They Mean

Message Display Panel

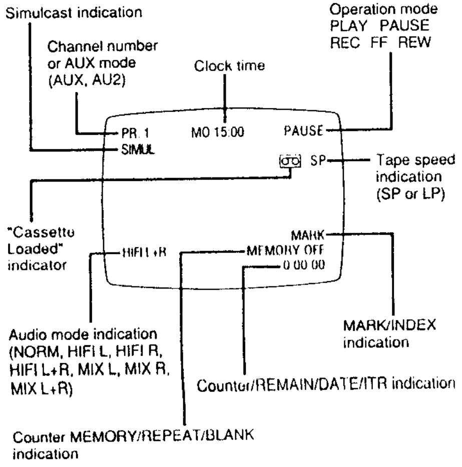
The operation mode is displayed on the recorder's display panel automatically. Displayed messages are designed to be self-explanatory. Here are some of the more common displays:

DISPLAY	MODE	DISPLAY	MODE
PLAY	Play	PAUSE (with channel number)	Record-Pause
STILL	Still	FWD SEARCH	Forward Search
FF	Fast-Forward	REV SEARCH	Reverse Search
REW	Rewind	FWD SLOW	Forward Slow
REC CH (with channel number)	Record	REV SLOW	Reverse Slow
TIMER REC	Timer-Recording	EJECT	Eject

For a more comprehensive list, ☞ p.39.

On-Screen Display

Operation modes (except PAUSE) are displayed on the TV screen only when the On-Screen Display function is set to ON. ☞p.15.


Simulcast indication
Channel number or AUX mode (AUX, AU2)
Clock time
Operation mode PLAY PAUSE REC FF REW
PR 1
SIMUL
MO 15:00
PAUSE
SP
Tape speed indication (SP or LP)
"Cassette Loaded" indicator
HIFI L+R
MARK
MEMORY OFF
0 00 00
Audio mode indication (NORM, HIFI L, HIFI R, HIFI L+R, MIX L, MIX R, MIX L+R)
MARK/INDEX indication
Counter/REMAIN/DATE/ITR indication
Counter MEMORY/REPEAT/BLANK indication

AUTOMATIC INDICATION

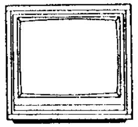
- **Channel, operation mode, audio mode, simulcast indication and "Cassette Loaded" mark**
  When the status is changed, the corresponding indication is displayed on the screen for 5 seconds. The PAUSE mode indication, however, is displayed for as long as the Pause mode is engaged.
- **Time and date**
  When time setting is completed, time and date are displayed for 5 seconds.

MANUAL RECALL

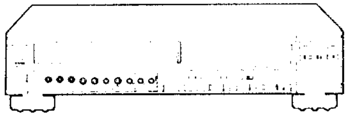
[1] Press OSD (On-Screen Display).
- All indications corresponding to the current status is displayed for 5 seconds, leaving the counter information (counter, REMAIN or DATE) on the screen.
- To check only the counter information, press DISPLAY.

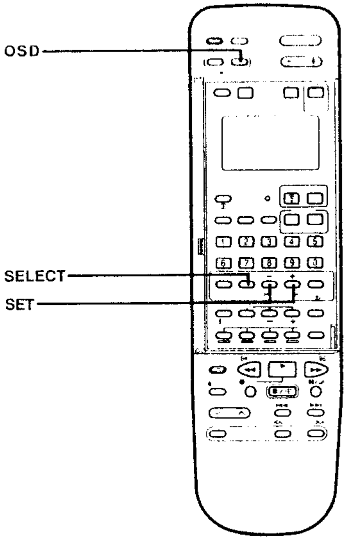
[2] Press OSD to clear the counter display.

On-Screen Set Up



POWER ON;
SELECT VIDEO CHANNEL
(OR AV MODE)




OSD
SELECT
SET

Language Select

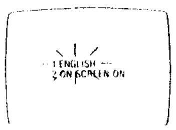
Although the preset on-screen language is English, you can set your video recorder to display on-screen messages in a choice of 10 languages.

A TURN ON THE RECORDER

1. Press OPERATE.

B ACCESS THE LANGUAGE SELECT MODE

2. Press OSD for longer than 2 seconds.
   - The current language and On-Screen ON/OFF status are displayed on the screen.
   - The displayed language blinks.


1 ENGLISH
2 ON SCREEN ON

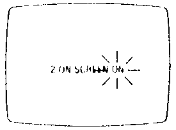
C SELECT THE LANGUAGE

3. Press SET + or – until your desired language is displayed.
   - Available languages are: ENGLISH, DEUTSCH, FRANCAIS, ITALIANO, ESPANOL, NEDERLANDS, SVENSKA, NORSK, SUOMI, and DANSK, in the order they are called up.
4. Press OSD while the language is blinking.
   - Now all on-screen messages will be displayed in the selected language.

On-Screen Display Function ON/OFF

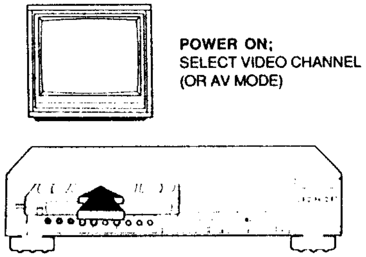
If you do not want on-screen displays, the function can be cancelled.

1. Press SELECT after step 2 above.
   - The On-Screen ON/OFF status is displayed.
2. Press either SET button.
3. Press OSD while the status is blinking.
   - Even with the function set to OFF, "PAUSE" is displayed for as long as the Pause mode is engaged. Of course, on-screen timer programming is not affected either.


2 ON SCREEN ON

► Playback

The easiest, most basic operation possible with your video recorder is tape playback. Already-recorded signals on a video tape are read by your video recorder and displayed on your TV just like a TV programme.



A LOAD A CASSETTE

1 Insert a cassette.
- The recorder power will come on automatically.
- If the safety tab on the cassette is removed, playback will start automatically.

B TO START PLAYBACK

2 Press ► (Play).

C TO STOP PLAYBACK

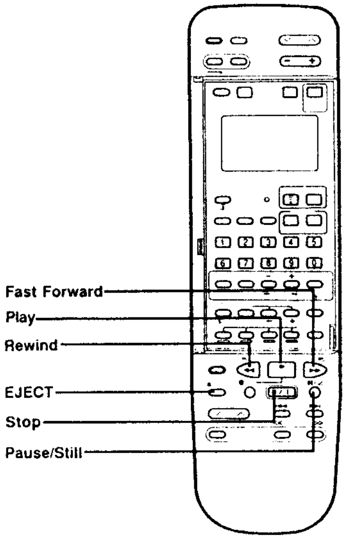
3 Press ■ (Stop).

D TO REWIND OR FAST-FORWARD

4 Press ◄◄ (Rewind) to rewind the tape.
5 Press ►► (Fast Forward) to fast-forward the tape.
- Press ■ (Stop) to stop rewind or fast-forward.

E TO EJECT THE TAPE

6 Press EJECT.



High-Speed Forward And Reverse Search

During Playback:

1. Press ►► (Fast Forward) for high-speed forward search.
2. Press ◄◄ (Rewind) for high-speed reverse search.
3. Press ► (Play) to resume normal playback.
   - For short searches, keep ►► (Fast Forward) or ◄◄ (Rewind) pressed for more than 2 seconds. When released, normal playback will continue.

Still Playback And Frame Advance

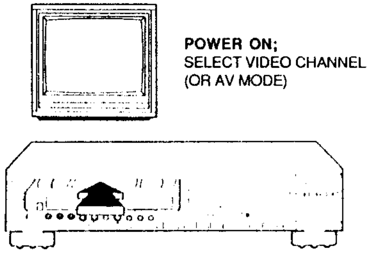
During Playback:

1. Press ❚❚ (Pause/Still) to view a still picture.
2. Press again to advance the picture frame by frame.
3. Press ► (Play) to resume normal playback.

NOTES:
- Tapes with monaural soundtracks (normal audio) are automatically played back in the NORM mode. When playing back tapes with Hi-Fi stereo, bilingual, or audio-dubbed soundtracks, ☞p.21.
- The recorder automatically stops when still continues for more than 5 minutes.
- If the still picture is unstable (vertical jitter) use the recorder's TV PROG. (in lieu of V. LOCK) buttons to correct the picture.
- During search playback, some noise bars will appear.
- If noise bars appear during playback, correct using manual tracking. ☞p.20.
- There is no audio during search, still, or frame-by-frame playback.
- The recorder automatically rewinds when the end of the tape is reached.

● Recording

TV signals being received by the recorder's built-in tuner can be recorded onto a video tape. This is realtime video recording.



A LOAD A CASSETTE

1 Insert a cassette with the safety tab in place.
- The recorder power will come on automatically.

B CHOOSE A PROGRAMME

2 Press TV PROGRAM (VTR) or the numeric keys to select the channel you wish to record.

C SELECT THE TAPE SPEED

3 Press SP/LP.

D TO START RECORDING

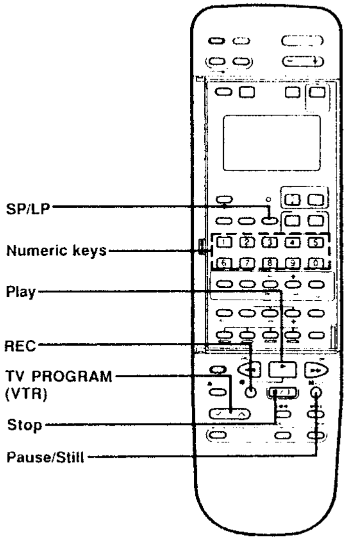
4 Press ● REC (Record) and ► (Play) simultaneously.

E TO PAUSE RECORDING

5 Press ❚❚ (Pause/Still).
6 Press ► (Play) to resume recording.

F TO STOP RECORDING

7 Press ■ (Stop).



To Watch Another Programme While Recording

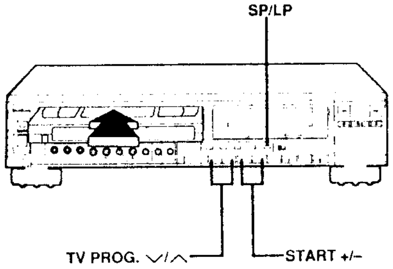
During Record:

1. Use the channel controls on the TV to select the other channel you wish to view.
   - The programme selected with the TV channel controls will appear on the TV screen while the one selected with the video recorder's channel controls will be recorded on the tape.

NOTES:
- To start recording with the recorder's REC/ITR button, press it once on its own. Pressing REC/ITR more than once activates the Off Timer. ☞p.22.
- After pause, when recording is resumed, a few frames recorded before the pause may be overlapped by the new recording. This is meant to reduce picture distortion and is not a malfunction.
- The recorder automatically stops when record-pause continues for more than 5 minutes.
- If the Record button does not work, check to see if the cassette's safety tab has been removed.
- When a VPS programme is being broadcast on the selected channel, "VPS" appears on the display panel. ☞p.30 for information on VPS.
- The channel cannot be changed while recording is in progress. To change the channel, engage the record-pause mode, then change the channel.
- The recorder automatically rewinds when the end of the tape is reached during recording.
- For stereo or bilingual recording, ☞p.23.

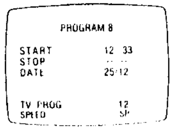
Timer-Recording

The "Express Timer" introduced here is the quickest method of programming your video recorder's timer. TV shows to be broadcast within 24 hours can be programmed for automatic recording simply by pressing three buttons (conveniently numbered) on your recorder's control panel. For timer programming using your remote control, ☞ p.26. TIMER PROGRAMMING IS NOT POSSIBLE UNLESS THE CLOCK HAS BEEN SET.



TO WATCH THE ON-SCREEN DISPLAY

At step B, if the TV is on and is set to the video channel (or AV mode), the data you input will also be shown on the TV screen.



```
PROGRAM 8

START      12 33
STOP       -- --
DATE       25/12

TV PROG       12
SPEED         SP
```

Express Timer Programming

A LOAD A CASSETTE

1 Insert a cassette with the safety tab in place.
- The recorder power will come on automatically.
- The recorder's display panel will show the channel being received.

PR 12

2 If you want to record another channel, press TV PROG. ∨/∧ to change the channel.

3 If you want to change the tape speed, press SP/LP.

B SET THE START TIME

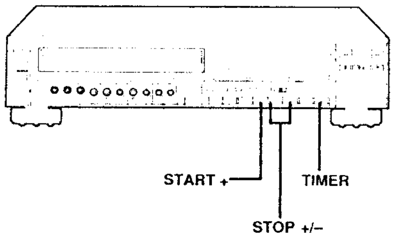
4 Press START +.
- This engages the programme set mode, and the current time will appear.

12:33 _ ⌟

5 Press START +/– to set the start time.
- START + advances the time and START – reverses the time.
- Press briefly to change by 1 minute. Hold the button down to change by 30-minute increments.

16:00 _ ⌟

- After the start time is set, "TODAY" or "TOMORROW" will be displayed for 3 seconds.



TO DISENGAGE THE TIMER

For safety, your recorder disables all other functions while in the timer mode.
- To use your recorder, first disengage the timer mode by pressing TIMER again. Now all functions will be operable.
- To re-engage the timer, press TIMER.

TO CHECK PROGRAMMED SETTINGS

While in the timer mode, press START + to check the settings you have programmed into the Express Timer. Each time START + is pressed, the display will change: Start Time, Stop Time, Date, Channel, Tape Speed, and "blank" again. DO NOT press START + while the timer mode is disengaged because this will clear the Express Timer's memory to make room for a new entry.

For other timer programming methods, ☞ p.26.
Any questions? ☞ p.30.

C SET THE STOP TIME

6 Press STOP +.
- The start time will be transferred over to the stop time position automatically.

16:00 _ ⌟ 16:00

7 Press STOP +/– to set the stop time.
- STOP + advances the time and STOP – reverses the time.
- Press briefly to change by 1 minute. Hold the button down to change by 30-minute increments.

16:00 _ ⌟ 17:45

D SET TO TIMER MODE

8 Press TIMER.
- The recorder will enter the timer mode and power will go off.

TIMER 12:35

TO CHANGE CHANNELS

If needed, you can change the channel at any time during steps B and C. This changes the channel being received and the channel to be recorded.

PR 26

TO CHANGE THE TAPE SPEED

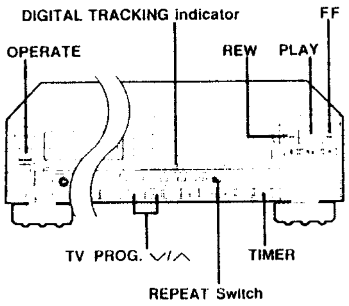
If needed, you can change the tape speed at any time during steps B and C.

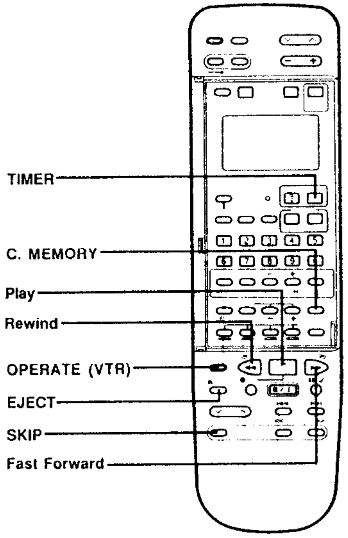
ATTENTION:

- If you have programmed the timer's PROGRAM 8 (via the on-screen programming facility that is available when an optional VPT adapter is connected, ☞ p. 38), using the Express Timer will clear that data from PROGRAM 8 and replace it with the Express Timer data.

For Playback

Take advantage of special functions possible with the recorder's controls or the remote control.





NOTE:

When a new tape is inserted, the recorder enters the automatic tracking mode automatically.

Repeat Playback (Recorder)

Your video recorder can automatically play back the whole tape or an index-marked portion 5 times repeatedly.

1. Set the REPEAT switch to FULL or INDEX.
   - For Index Repeat playback, locate the index code at which you wish to start playback. (Index Search, ☞p.25.)
2. Press PLAY. Repeated playback will start. After repeating 5 times consecutively, playback will stop.
   - Be sure to reset the REPEAT switch to OFF before pressing the PLAY button again; otherwise repeat playback will resume.

Manual Tracking (Recorder)

Your video recorder is equipped with automatic tracking control; the DIGITAL TRACKING indicator lights or blinks when automatic tracking is on. During playback, tracking can be adjusted manually using the TV PROG. buttons.

1. Press TV PROG. (∨ and ∧) simultaneously for manual override.
   - The DIGITAL TRACKING indicator will go out.
2. Press TV PROG. (∨ or ∧) to adjust tracking.
3. Press TV PROG. (∨ and ∧) simultaneously to return to automatic tracking.

To adjust tracking during slow motion, simply press TV PROG. (∨ or ∧) to obtain the best picture.

Next Function Memory (Recorder and Remote Control)

For automatic start of playback after the tape is rewound:

1. Press ◄◄ (Rewind).
2. Press ► (Play) within 2 seconds.

For automatic power off after the tape is rewound:

1. Press ◄◄ (Rewind).
2. Press OPERATE (VTR) within 2 seconds.

For automatic eject after the tape is rewound: (Remote Control only)

1. Press ◄◄ (Rewind).
2. Press EJECT within 2 seconds.

For automatic timer standby after the tape is rewound:

1. Press ◄◄ (Rewind).
2. Press TIMER within 2 seconds.

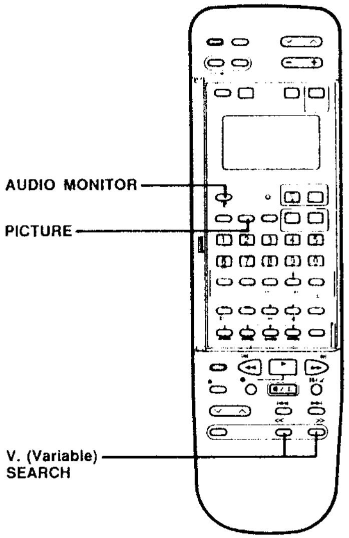
- If you want the "next function" to automatically start when the counter reads "0:00:00" (instead of at the beginning of the tape), press C. MEMORY so that the "M" mark appears before pressing ◄◄ (Rewind).

Skip Search (Remote Control)

Your recorder offers a simple way of skipping over unwanted sections of recorded TV programmes.

During Playback:

1. Press SKIP from 1 to 4 times.
   This fast-motions through 30-sec. to 2 min. of tape.
   - Playback resumes automatically.
   - Press ► (Play) to cancel a Skip Search midway.



NOTES:

- If noise bars appear during slow motion, correct using manual tracking. ☞ p.20.
- During variable-speed search, some noise bars will appear.
- When playing back LP recordings in the search, still, or frame-by-frame playback mode, the picture will be distorted, and there may be a loss of colour.

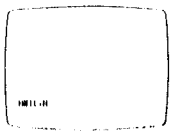
Soundtrack Selection

Your video recorder is capable of recording three soundtracks (HIFI L, HIFI R and NORM) simultaneously, and playing back the selected soundtrack.

- Pressing AUDIO MONITOR (on the remote control) changes the channel:

  L+R → L → R

- Pressing Hi-Fi/NORMAL/MIX (on the recorder) changes the track:



HIFI → NORM → MIX

Usual settings
HIFI L + R: for Hi-Fi stereo tapes
HIFI L or HIFI R: for bilingual tapes
MIX L + R : for audio-dubbed tapes

NOTE:

Normally use the HIFI L + R position. Then Hi-Fi stereo tapes are played back in stereo, and tapes with normal audio only are played back automatically in the NORM mode.

Variable-Speed Search And Slow Motion

You can view pictures in slow to fast motion in either direction. The V. (Variable) SEARCH buttons let you control the speed and the direction.

During Play or Still:

1. Press either V. SEARCH button. Tape will move in the corresponding direction.
   - The more times the button is pressed, the faster the playback picture will move.
   - To decrease speed, press the button for the opposite direction.
   - Press ► to resume normal playback.

Picture Control

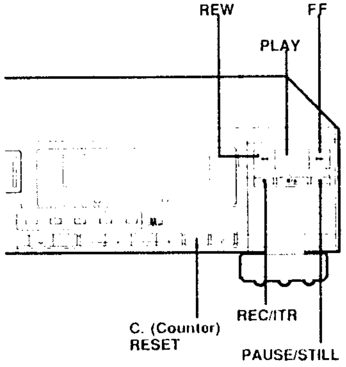
Your video recorder has a built-in video processor that lets you choose the type of playback picture that's best for any given application.

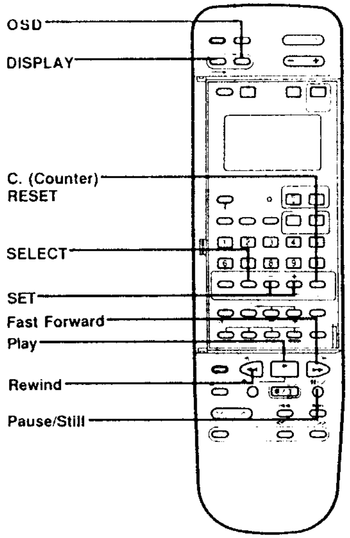
During Play:

1. Press PICTURE as many times as required to reach the desired setting.
   - The display panel shows the setting for 5 seconds.

Display Panel	When To Use
ENHANCED	When viewing tapes with noise due to repeated playback, such as rental videos.
TAPE DUB	When editing to another recorder.
SOFT PIX	When you want a soft picture.
SHARP PIX	When you want a sharp picture.
OFF	When no modification is required.

For Recording





NOTES:

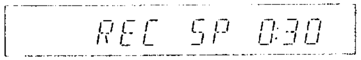
- With Retake, rainbow noise may occur in the rewound and re-recorded section. Retake in the LP mode is not recommended.
- The remaining time is inaccurate while the display is blinking. When blinking stops, the remaining time is shown.

Instant Timer Recording (Off Timer) (Recorder)

You can start a recording and then set the recorder to shut off automatically after a set duration.

During Record:

1. Press REC/ITR (on the recorder). A "REC SP 0:30" or "REC LP 0:30" indication appears, advising that power will switch off after 30 minutes.



   - "ITR 0:30" will be displayed on the TV screen.
2. Press REC/ITR again to delay the off-time by 30-minute increments (up to 4 hours).
   - For a more precise setting, use the SELECT/SET buttons on the remote control unit to set the exact time required (possible up to 8 hours and 59 minutes).

Retake (Recorder and Remote Control)

You can cut out unwanted parts of a TV programme while you're recording it.

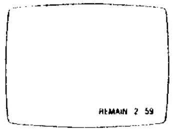
During Record:

1. Press PAUSE/STILL.
2. Press FF or REW for normal-speed search in the corresponding direction.
   - Release to return to Record-Pause mode.
3. Press PLAY when you wish to resume recording.

Remaining Tape Time Indication
(Remote Control)

When you need to know the tape's remaining time.

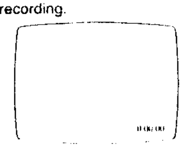
1. Press DISPLAY until "REMAIN" appears on the screen. Approximate remaining tape time is displayed.
2. To clear the screen, press OSD.
   - The display panel also shows remaining tape time, but, during recording, changes back to the "REC" mode display after 5 seconds.

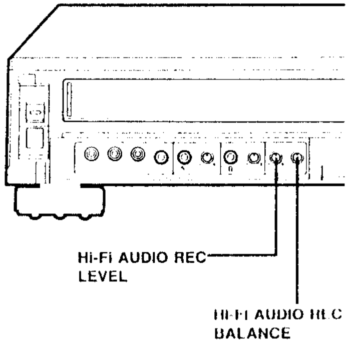


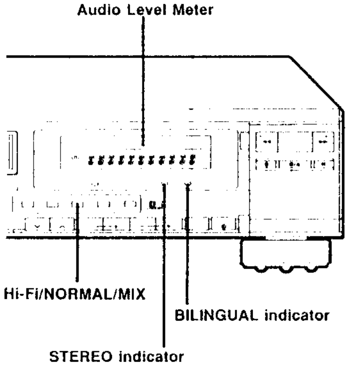
Elapsed Recording Time Indication
(Remote Control)

When you need to know the exact time of a recording.

1. Press C. (Counter) RESET to reset the counter to "0:00:00" and then start recording.
2. Press DISPLAY anytime when you want to check the elapsed recording time.
3. To clear the screen, press OSD.







Hi-Fi Audio Recording Level Control

In most cases, setting the Hi-Fi AUDIO REC BALANCE and LEVEL controls to the center position will provide satisfactory results. If necessary, you can adjust the Hi-Fi audio recording level more precisely by referring to the audio level meter above the message display.

- Turn the BALANCE control to adjust the balance between left and right channels.
- Turn the LEVEL control to adjust the level. When the level meter lights up to or near 0 dB with the loudest signal being applied, the recording level is optimum.

NOTES:

- Make sure that the "HIFI L + R" position is selected with the AUDIO MONITOR button. ☞p.21.
- Noise will increase if the recording level is too low, while distortion will increase if the level is too high.

Stereo And Bilingual

Your recorder is equipped with a Sound Multiplex decoder for reception of stereo and bilingual broadcasts.

- When a stereo programme is being received, the STEREO indicator lights.
- When a bilingual programme is being received, the BILINGUAL indicator lights.

To Record Stereo Programmes

Stereo programmes are automatically recorded in stereo on the Hi-Fi audio track (with the normal audio track recording mixed L and R channel sound). No special operation is required. Simply follow the basic recording procedure.

- To listen to the stereo soundtrack while recording, select "HIFI L+R" with AUDIO MONITOR. ☞p.21

NOTE:

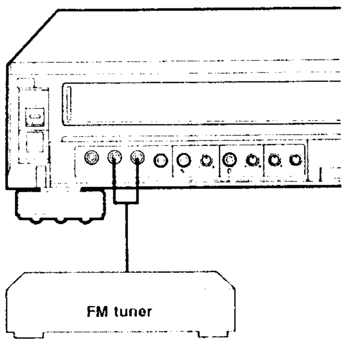
- If the quality of stereo sound being received is poor, the STEREO indicator will go off, and the broadcast will be received in monaural with better quality.

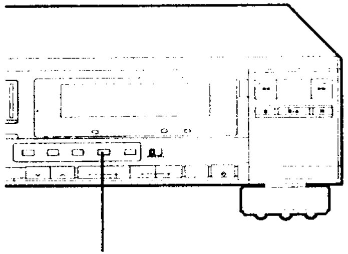
To Record Bilingual Programmes

Bilingual programmes are automatically recorded in bilingual on the Hi-Fi audio track. The main soundtrack will be recorded on the normal audio track.

- To listen to the Hi-Fi soundtrack during recording, select "HIFI L" for Main, and "HIFI R" for Sub.
- To listen to the normal soundtrack, select "NORM" with the Hi-Fi/NORMAL/MIX button on the recorder.

For Recording (cont'd)





Simulcast Recording

Your recorder lets you record an audio programme while recording a TV programme. In the Simulcast mode, the TV soundtrack is recorded on the normal audio track and the external audio programme is recorded on the Hi-Fi audio track, so you can have two independent programmes. If FM simulcast TV programmes are available, record the TV programme and its FM-broadcast soundtrack simultaneously.

PREPARATION

1. Connect the FM tuner to the rear panel AUDIO IN or front panel A (Audio) connectors.
   - Front panel connections have priority.
2. Set the FM tuner to the desired broadcast.

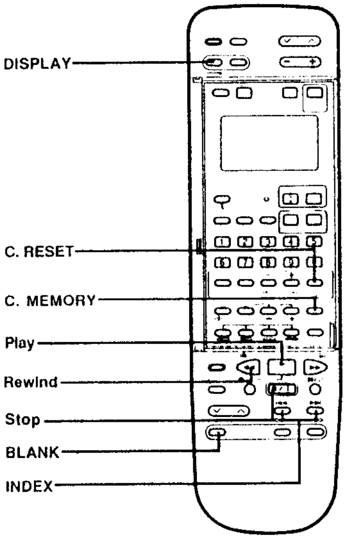
PROCEDURE

1. Select the TV programme you wish to record.
2. Select the SIMULCAST mode by pressing the SIMUL/AUX 2 button.
3. Start recording.

NOTES:

- If you stop recording with the PAUSE/STILL button to avoid unwanted TV programme material, the audio programme is also cut.
- After finishing simulcast recording, be sure to press the SIMUL/AUX 2 button to cancel the Simulcast mode, otherwise it is not possible to record on the Hi-Fi track from the built-in tuner.

◀◀ ▶▶ For Tape Access



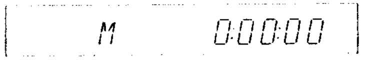
Realtime Tape Counter

Your recorder's tape counter displays the hours, minutes, and seconds of a taped programme. During playback, your recorder's display panel will show a counter reading unless you change it using the DISPLAY button. To reset the counter to "0:00:00" at any time press C. RESET. Also the counter is automatically reset whenever you load a new cassette.

Counter Memory (Remote Control)

During Playback:

1. Press C. RESET at a point you wish to locate later.
   - The counter will read "0: 00: 00".
2. Press C. MEMORY.
   - "M" will appear in front of the counter digits.
3. When you wish to return to that point, press ■ (Stop) and then press ◀◀ (Rewind).
   - The tape will rewind and stop at about "0: 00: 00" automatically.



4. To cancel the Counter Memory mode, press C. MEMORY.

Index Search (Remote Control)

This function gives you quick access to any one of 9 index codes in either direction. Your recorder automatically marks index codes at the beginning of each recording.

During Playback or Stop:

1. Press INDEX ◀◀ or ▶▶ . "INDEX −1" or "INDEX +1" will be displayed and search will begin in the corresponding direction.
2. If you wish to access index codes 2 through 9, press INDEX repeatedly until the correct index number is displayed.
   - When the specified index code is found, playback will start automatically.

Blank Search (Remote Control)

This function lets you quickly locate the blank portion of a partially recorded tape.

During Stop:

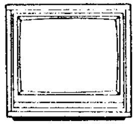
1. Press BLANK.
   - The recorder automatically fast-forwards or rewinds to the end of the recorded portion of tape, and stops.
   - The tape's remaining time is automatically displayed. Press DISPLAY to return to the realtime counter display.

NOTES:

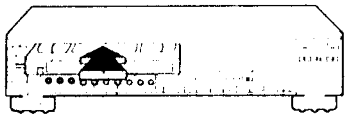
- Press ▶ (Play) or ■ (Stop) to cancel Index Search or Blank Search.
- If the end of the tape is reached during Index Search, the mode is cancelled and the tape is rewound to the beginning.
- When a fully recorded tape is used for re-recording new material, Blank Search can be used to detect the end of the new material.

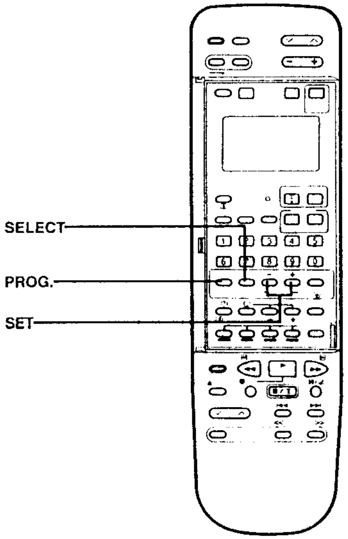
For Timer-Recording

The on-screen and LCD timer programming methods are introduced here. Both have different advantages. With on-screen programming, you can follow easy-to-see guides on your TV screen. With LCD programming, you can preserve the programmed data in memory and transfer it to the recorder anytime when necessary. TIMER PROGRAMMING IS NOT POSSIBLE UNLESS THE CLOCK HAS BEEN SET.



POWER ON;
SELECT VIDEO CHANNEL
(OR AV MODE)





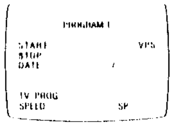
On-Screen Timer Programming

A LOAD A CASSETTE

1. Insert a cassette with the safety tab in place.
   - The recorder power will come on automatically.

B ACCESS THE ON-SCREEN PROGRAM DISPLAY

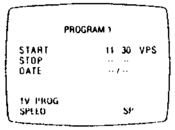
2. Press PROG.
   - You are ready to input data into Program No. 1.
   - To change the program number, press SET.



```
        PROGRAM 1

START                 VPS
STOP
DATE             /

TV PROG
SPEED            SP
```

C INPUT THE START TIME

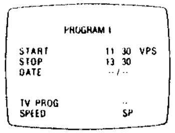
3. Press SELECT, and then SET to input the hour.
4. Press SELECT, and then SET to input the minute.



```
        PROGRAM 1

START            11 30 VPS
STOP             -- --
DATE             --/--

TV PROG
SPEED            SP
```

D INPUT THE STOP TIME

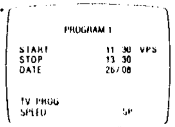
5. Press SELECT, and then SET to input the hour.
6. Press SELECT, and then SET to input the minute.



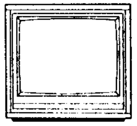
```
        PROGRAM 1

START            11 30 VPS
STOP             13 30
DATE             --/--

TV PROG          --
SPEED            SP
```

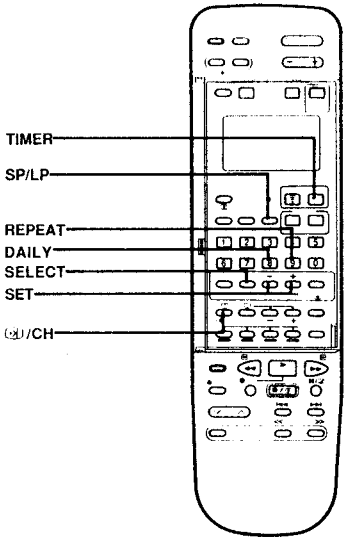
E INPUT THE DATE

7. Press SELECT, and then SET to input the day.
8. Press SELECT, and then SET to input the month.



```
        PROGRAM 1

START            11 30 VPS
STOP             13 30
DATE             26/08

TV PROG
SPEED            SP
```



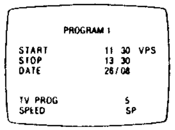


CAUTION:
Make sure that the tape length is enough to record the intended programme. If the tape finishes before the stop time is reached, the cassette is automatically ejected. If the recorder is placed inside a rack, there must be sufficient clearance to allow the front panel cover to open unobstructed.

NOTE:
The data you input will also be shown on the message display pannel.

F INPUT THE CHANNEL NUMBER

9. Press SELECT, and then SET to input the channel.
   - The screen colour changes to green.
   - Normally, you should leave "VPS" on so you can take advantage of VPS recording*. You can cancel VPS by pressing the ⊡/CH button whenever the memory program is open. If you have any questions about VPS, ☞p.30.



```
        PROGRAM 1

START            11 30 VPS
STOP             13 30
DATE             26/08

TV PROG          5
SPEED            SP
```

G SELECT THE TAPE SPEED

10. Press SELECT, and then SP/LP.

H END ONE PROGRAM

11. Press SELECT.
    - The program number will blink.
    - To make corrections, advance with SELECT to the item you wish to change and input new data with SET.
    - If you need to set another program, press SET and repeat steps C through H.

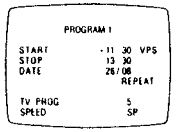
I SET TO TIMER MODE

12. Press TIMER.
    - The recorder will enter the timer mode and power will go off.
    - Press TIMER again to release the timer mode.

Variations In Step E (Weekly Program)

This function lets you set the recorder to timer-record at the same time on the same day every week. Use it to record weekly serials.

- First press REPEAT (numeric key "9") and then enter the date.

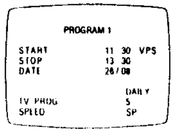


```
        PROGRAM 1

START           ·11 30 VPS
STOP             13 30
DATE             26/08
                    REPEAT

TV PROG          5
SPEED            SP
```

Variations in Step E (Daily Program)

This function lets you set the recorder to timer-record at the same time everyday. Use it to record daily serials.

- To record a daily serial starting on the day of setting, press DAILY (numeric key "8") and then press SELECT.
- To record a daily serial starting on a certain day, press DAILY and then enter the date.



```
        PROGRAM 1

START            11 30 VPS
STOP             13 30
DATE             26/08

                 DAILY
TV PROG          5
SPEED            SP
```

TO MAKE CORRECTIONS

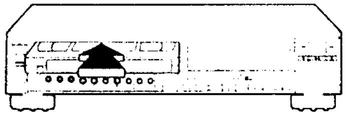
Press SELECT so that the item you want to change blinks, and press SET to set the new data.

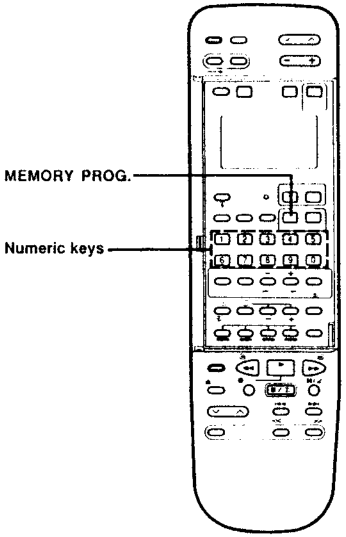
Any questions? ☞ **p.30.**

---

* VPS adapter is required on "E" version.

For Timer-Recording (cont'd)





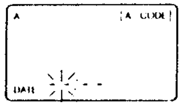
LCD Timer Programming

A LOAD A CASSETTE

1 Insert a cassette with the safety tab in place.
- The recorder power will come on automatically.

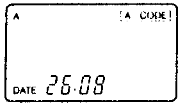
B ACCESS THE LCD TIMER PROGRAM

2 Press MEMORY PROG. (Program A)
- Four programs (A, B, C, and D) are available. To select another program, press MEMORY PROG.



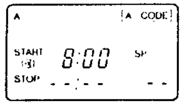
C INPUT THE DATE

3 Press the appropriate numeric keys.
- Example: For 26th August, press 2 6 0 8.



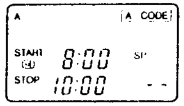
D INPUT THE START TIME

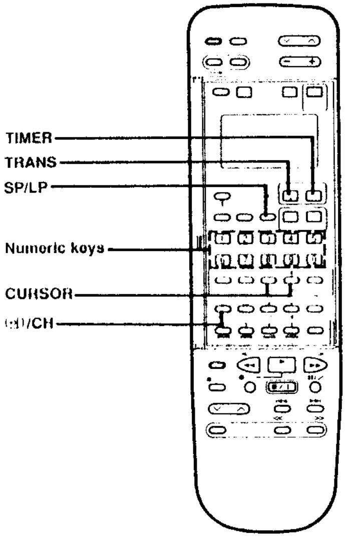
4 Press the appropriate numeric keys.
- Example: For 8:00, press 0 8 0 0.



E INPUT THE STOP TIME

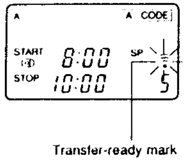
5 Press the appropriate numeric keys.
- Example: For 10:00, press 1 0 0 0.





F INPUT THE CHANNEL NUMBER

6 Press the appropriate numeric keys.
- Example: For channel 5, press 5.
- After the channel has been entered, the transfer-ready mark will appear and blink.
- Normally, you should leave " " on so you can take advantage of VPS recording*. You can cancel VPS by pressing the /CH button whenever the memory program is open. If you have any questions about VPS, ☞p.30.



G SELECT THE TAPE SPEED

7 Press SP/LP.

H TRANSFER THE DATA TO THE RECORDER

8 Press TRANS with the remote control directed to the recorder's Remote Sensor window.
- You will see "PROGRAM 1" on the display panel, telling you that the data has been successfully transferred to the recorder's Program 1 memory.

I SET TO TIMER MODE

9 Press TIMER.
- The recorder will enter the timer mode and power will go off.
- To disengage the timer mode, press TIMER again.

Variations in Step C (Weekly Program)

This function lets you set the recorder to timer-record at the same time on the same day every week. Use it to record weekly serials.
- First press numeric key "9" (REPEAT) and then enter the date.

Variations in Step C (Daily Program)

This function lets you set the recorder to timer-record at the same time every day. Use it to record daily serials.
- To record a daily serial starting on the day of setting, press numeric key "8" (DAILY) and then press CURSOR → until the display changes to time input mode.
- To record a daily serial starting on a certain day, press numeric key "8" (DAILY) and then enter the date.

TO MAKE CORRECTIONS

Press either CURSOR button so that the item you want to change blinks, and enter new data.

Any questions? ☞ p.30.

---

* VPS adapter is required on "E" version.

For Timer-Recording (cont'd)

On Checking And Cancelling Programs

Since executed programs are automatically cleared from memory (except those for daily and weekly serials), cases where the entire memory is full should be rare. If this should happen, check the preset programs and cancel one or more to make room for the new program(s) you wish to input.

TO CANCEL A PROGRAM FROM THE RECORDER'S MEMORY

1. Press PROG.
   - Program 1 is displayed with the number blinking.
2. Press SELECT to review the program contents in succession.
3. Press CANCEL to erase the program from memory.
   - You can press CANCEL at any stage while the program is open.
   - To erase another program, press SET when a blinking program number is displayed.

TO CANCEL A PROGRAM FROM THE REMOTE CONTROL'S LCD MEMORY

1. Press MEMORY PROG. until you find a program you wish to cancel. (A, B, C, or D.)
2. Press MEMORY CANCEL to erase that program from the LCD memory.

Some Facts On Timer Operation

- If the end of the tape is reached during timer-recording, the cassette is automatically ejected and recorder's power is switched off with "TIMER REC" and "TAPE END" flashing alternately on the message display panel.
- When timer-recording is successfully completed, the recorder's power is automatically switched off.
- Since the timer starts and stops recording based on the time being kept by the recorder's built-in clock, the clock's time must be accurate for correct timer-recording results.

VPS Recording

Now available from some TV stations, VPS (Video Program System) is a service designed to assure safe, accurate timer-recording. With this system, special code signals are transmitted together with the audio/video signals. These code signals control your video recorder and have precedence over times you preset in the timer. This means that your recorder will start and stop recording when the preset TV programmes actually start and end — even if the broadcast time of a preset TV programme is changed. If your video recorder is an "EG" model, it already incorporates a built-in VPS decoder. If your recorder is an "E" model and you want to take advantage of this service (if available), you must connect an optional adapter (☞ Specifications) to the VPS/VPV/VPT connector on the rear panel of your recorder.

To Use VPS Service

- For each timer program, the initial setting is "VPS ON" and you will see "VPS" on the display panel together with a channel number. You do not have to cancel "VPS" even for non-VPS programmes, because those programmes will be recorded at the preset times.
- To cancel "VPS", press the VPS button. Pressing the VPS button alternates the setting, and "VPS ON" or "VPS OFF" is displayed for 2 seconds.
- When you open the LCD timer memory, the LCD display always shows " ⊡ ". If your video recorder is an "E" version and you have not connected a VPS adapter, be sure to cancel " ⊡ " by pressing the ⊡/CH button before transferring the memory data to the recorder.

Error Messages

The following error messages may appear on the message panel when you press the TIMER button to engage the Timer Standby mode. Here's why, and what you should do.

NO CASS

- Displayed for 5 seconds and the Timer Standby mode is cancelled.

WHY: There is no cassette in the recorder.
WHAT TO DO: Insert a cassette. Press TIMER again.

NO REC TAB

- Displayed for 5 seconds. The Timer Standby mode is cancelled.

WHY: The inserted cassette has its safety tab removed.
WHAT TO DO: Eject that cassette. Insert a cassette with its safety tab intact. Or cover the safety tab hole of the cassette with adhesive tape and re-insert it. Press TIMER again. ☞p.9.

NO PROGRAM

- Displayed for 5 seconds. The Timer Standby mode is cancelled.

WHY: There are no preset programs in memory.
WHAT TO DO: Check the programmed data and re-program it as necessary. Press TIMER again.

……

Other Messages

The following messages may also be encountered during timer-recording.

TIMER (with current hour)

WHY: The recorder is in the Timer Standby mode. This is the normal display you should see when you press the TIMER button.

TIMER REC

WHY: Normal display while timer-recording is in progress.

TAPE END

WHY: If this and "TIMER REC" are alternately displayed, it means that the end of the tape was reached while timer-recording was in progress. Therefore, the preset program may not be recorded in its entirety.

SET CLOCK

WHY: This means the clock must be set. It's displayed when time-keeping is terminated due to a power failure or because the recorder's power plug was pulled from the AC outlet.
WHAT TO DO: Set the clock. ☞p.10.

- If power was interrupted, it's also likely that all preset timer programming data has been erased. Please check and re-program as necessary.

The following messages may be encountered when the TRANS button of the remote control is pressed. ☞p.29.

PROGRAM (with number)

- Displayed for 5 seconds.

WHY: The transferred data has been stored in that program number. (The smallest vacant program number is always selected automatically.)

TRANS ERR

- Displayed for 5 seconds.

WHY: Data was not successfully transferred. The program may have been incorrectly preset, or the recorder's clock has not been set.
WHAT TO DO: Check the LCD program, and re-program as necessary. Transfer the correct data.

PROG FULL

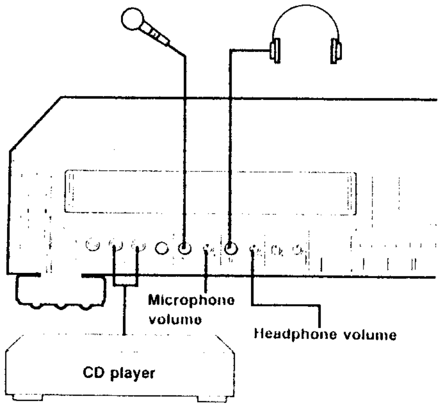
- Displayed for 5 seconds.

WHY: All the recorder's timer programs (1 – 7) are preset.
WHAT TO DO: Cancel unnecessary programs, and transfer again.

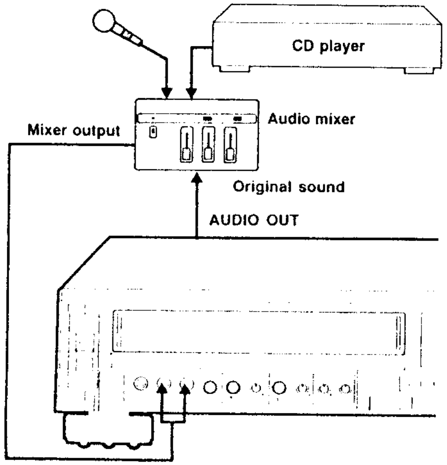
For Editing

Your video recorder is well equipped to modify your recorded tapes into more attractive compositions.

Simple audio dubbing

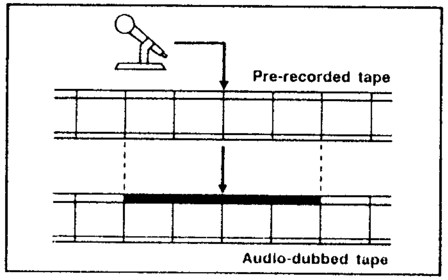


With audio mixer



NOTE:

- Audio dubbing is not possible with cassettes whose safety tab has been removed.



Audio Dubbing

Audio dubbing replaces the normal audio sound of a previously recorded tape with a new soundtrack. Add your personal touch by recording commentary, etc.

PREPARATION

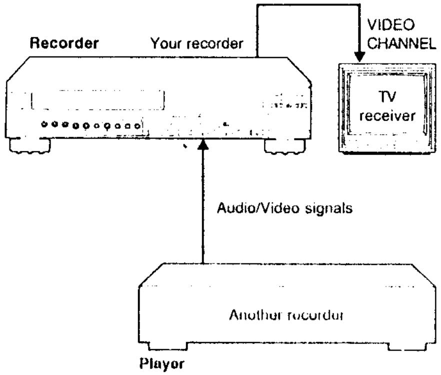
1. Connect a microphone to the MIC jack.
2. Select the AUX INPUT 2 mode. (First engage the AUX INPUT mode with TV PROG., then press SIMUL/AUX 2.)

PROCEDURE

1. Adjust the input level with the microphone volume control.
2. Start playback and engage the Still mode at the point from which you wish to start audio dubbing.
3. Press the AUDIO DUB button.
4. Press the PLAY button.
   - Audio dubbing will start.
5. Press the PAUSE/STILL button to stop audio dubbing temporarily.

NOTES:

- When monitoring the sound during Audio Dubbing, the normal soundtrack will be automatically selected. If you wish to hear the mixed sound (Hi-Fi + normal soundtracks), press the Hi-Fi/NORMAL/MIX button to select the MIX mode. ☞ P.21.
- Audio dubbing will stop automatically at the counter reading of "0:00:00", and the recorder will enter the Play mode. Check the counter before starting audio dubbing.
- If you wish to use audio sources other than microphone input, connect the audio equipment to the front panel A (Audio) or rear panel AUDIO IN connectors. (Front panel connections have priority. For monaural equipment, use the L connector.) If both the microphone and another audio source are connected, mixed recording is possible.
- Audio dubbing is also possible with input via the 21 pin AUDIO/VIDEO socket. In this case, use the AUX INPUT mode.
- If howling occurs, move the microphone away from the TV or reduce the TV sound volume. If necessary, monitor the sound with headphones.
- After finishing audio dubbing in the AUX INPUT 2 mode, be sure to press the SIMUL/AUX 2 button, otherwise the SIMUL mode will be engaged when you start recording of TV programmes.



Editing From Another Recorder

Tape-to-tape editing is possible using another deck as the playback unit and your recorder as the recording unit.

PREPARATION

1. Connect another video recorder to the rear panel 21-pin AUDIO/VIDEO socket or front panel A (Audio) and V (Video) connecter.
2. Engage the external input mode.
   - Press TV PROG. until "AUX INPUT" appears on the message display.

OPERATION

3. Load the source tape in the player, and the recording tape in your recorder.
4. Select the recording speed (SP or LP).
5. Put your recorder in the Record-Pause mode.
6. Play back the source tape to search for scene to be edited.
7. Press the recorder's PLAY button where you want to start editing.
8. Press the recorder's PAUSE button to stop editing.
9. Repeat steps 6 through 8 to continue editing.

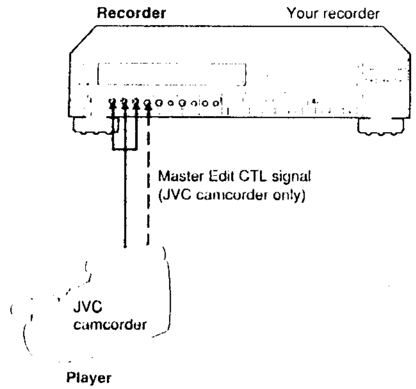
NOTE:

- If you do not want to record on-screen messages on the edited tape, cancel the on-screen display. ☞ p.15

NOTES:

- Suitable leads can be obtained from your dealer.
- Connections made to the front panel Video and Audio inputs automatically override the rear panel AUDIO/VIDEO input connection. If you wish to edit with another machine connected to the rear input connector, make sure that there is nothing connected to the front connectors.

……



Editing From A JVC Camcorder

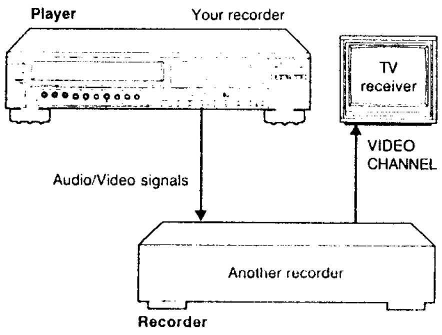
Tape-to-tape editing is also possible using a JVC camcorder (equipped with playback facility) as the player and your recorder as the recording deck. In this case, the recorder's PAUSE terminal can be used to accept Master Edit Control commands from the camcorder.

PREPARATION

1. Connect the camcorder's AV OUT connector to the recorder's front panel V(Video) and A(Audio) connectors.
2. Connect the AV output cable's mini-plug to the PAUSE terminal of the recorder.

- If the camcorder is equipped with the Master Edit Control system, you can control the recorder using the camcorder's controls. See the camcorder's instruction manual for operating procedures.
- With this connection, you can also use the camcorder as a video camera for direct recording onto the recorder's tape. Put the recorder in Record-Pause and use the camcorder's start/stop trigger to start and pause recording. (For direct recording with a separate video camera, a camera adapter is necessary.)

For Editing (cont'd)



Editing To Another Recorder

In tape-to-tape editing, your recorder can also be used as the playback unit.

PREPARATION

1. Connect your recorder's 21-pin AUDIO/VIDEO socket to the audio and video input connectors of the recording deck.
2. Load the source tape in the player and the recording tape in the recorder.
3. Engage the recorder's AUX mode.

OPERATION

4. Put the recorder in the Record-Pause mode.
5. Play back the source tape to search for a scene to be edited.
6. Press the recorder's PLAY button.
7. Press the recorder's PAUSE button to stop editing.
8. Repeat steps 5 through 7 to continue editing.

NOTES:

- When using your recorder as a playback deck, select the TAPE DUB mode with the remote's PICTURE button. ☞ p.21
- If you do not want to record on-screen messages on the edited tape, cancel the on-screen display. ☞ p.15

For Convenience

Setting The Clock Forward Or Backward By One Hour (Daylight Saving Time Adjustment)

TO ADVANCE THE TIME BY ONE HOUR

1. Press the remote control's SUMMER TIME ADJUST button and quickly release.
2. Press the TRANS button.
   - The revised time is transferred to the recorder.

TO SET THE TIME BACK BY ONE HOUR

1. Keep SUMMER TIME ADJUST pressed for more than 2 seconds.
2. Press the TRANS button.
   - The revised time is transferred to the recorder.

Turning Off The Display

The fluorescent display on your JVC recorder can be switched off at any time.

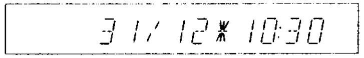
1. Press the DISPLAY OFF button on the recorder. The lights in the display will go out.

2. To restore the display, press the DISPLAY OFF button again.

Locking The Recorder's Controls

To avoid unwanted operation and prevent accidental recording or other interference, use the Child Lock function.

1. Press the remote control's OPERATE (VTR) button to turn the recorder's power off. Keep this button pressed for about 2 more seconds after the power LED indicator has gone off.
   - The Child Lock indicator (✱) will appear between the date and time on the display panel.



2. Child Lock is automatically deactivated when you switch the recorder's power on again with the remote's OPERATE (VTR) button.
   - Pressing the TIMER button during timer-recording also deactivates the Child Lock mode.

NOTES:

- While the Child Lock mode is engaged, make sure you keep your remote control in a safe place inaccessible to children.
- Timer-recording is possible in the Child Lock mode. After timer-recording has been performed, the Child Lock mode remains in effect.

Remote A/B Code Switching

The remote control is capable of controlling two JVC video recorders independently; one set to respond to your remote control's A code control signals and another set to respond to B code control signals. The remote control is preset to send A code signals (indicated by " A CODE " on the LCD) because your video recorder is initially set to respond to A code signals. You can easily modify your video recorder to respond to B code signals.

1. Unplug the recorder's power cord from the AC outlet.
2. Press the A/B CODE button. (" B CODE " will appear on the LCD.)
3. Plug the power cord back into the AC outlet. Do not use other remote controls at this stage.
4. Turn the recorder power on using the remote control's OPERATE (VTR) button. The recorder will now only respond to B code signals.

NOTE:

Some TV sets may malfunction in response to the B mode. If this happens switch back to the A mode.

For Reception

Changing Preset Channels

TO CHECK STORED REAL CHANNELS

Use the remote control. First turn on the recorder.

1. Press TV PROGRAM (VTR) to select the channel position of the stored real channel whose number you want to know. (e.g. PR. 10)
2. Press CH.

STORED 10

⬇

REAL Ch26

- This indicates that channel position 10 stores real channel 26.

3. To check other channel positions, press TV PROGRAM (VTR).
   - Either "STORED xx" or "SKIPPED xx" will appear, followed by "REAL Ch xx" or "REAL CC xx".
4. The Channel Set mode will be cancelled in about 10 seconds unless you call up another channel position. Do not press the CH button; this alternates between Ch and CC bands.

TO DELETE STORED CHANNELS

Use the remote control. First turn on the recorder.

1. Press TV PROGRAM (VTR) to select the channel position you want to skip. (e.g. PR. 10)
2. Press CH.

STORED 10

3. Press SKIP.

SKIPPED 10

⬇

REAL Ch26

- This indicates that real channel 26 has been deleted from channel position 10.

TO STORE NEW CHANNELS

Use the remote control. First turn on the recorder.

1. Press CH.

REAL Ch26

2. Press CH again and keep it pressed until the real channel number starts blinking.
3. Press CH to change the band between Ch and CC, if necessary.
4. Press numeric keys to input the number of the real channel you want to store. (e g. Ch 26.)

REAL Ch26

⬇

SKIPPED 10

5. Press numeric keys to input the number of a vacant channel position (e.g. 20), and hold the key for the 2nd entry until the display changes to "STORED 20".

STORED 20

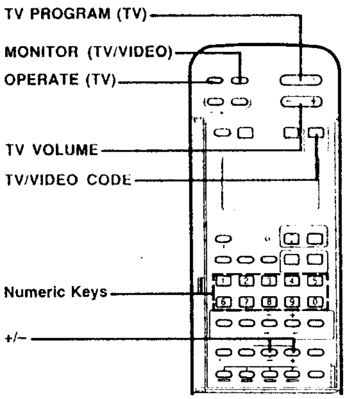
⬇

REAL Ch26

- The Channel Set mode will be cancelled automatically after about 60 seconds.

Using The Remote Control For TV Operation

The provided remote control can operate the basic functions of your television. In addition to JVC televisions, other manufacturers' televisions listed here can also be controlled by setting the remote control to the corresponding TV code. The remote control's default code is "1", which enables control of most JVC televisions without re-setting. If your JVC television is equipped with 10+ and 20+ buttons on its remote control, you have to set the TV code to "2".



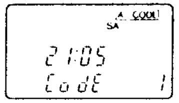
CODE	TV BRAND NAME
1	JVC
2	JVC
3	BRANDT NORDMENDE SABA TELEAVIA TELEFUNKEN THOMSON
4	FERGUSON
5	PHILIPS
6	BLAUPUNKT GRUNDIG
7	SONY
8	PANASONIC
9	PANASONIC
0	GRAETZ ITT LUXOR SALORA SELECO

IMPORTANT

Although the provided remote control unit is compatible with JVC televisions, as well as many TV models manufactured by others, it is possible that the provided remote control will not work with your TV, or in some instances, will have limited function capability.

Setting The TV Code

1. Press TV/VIDEO CODE for longer than 2 seconds.
   - The LCD will show the current code (initially "Code 1").
2. Press a numeric key corresponding to the code number for your TV's brand.
   - The LCD will return to the clock mode after 2 seconds.



NOTES:

- TV code setting is not possible unless the clock has been set.
- Whenever you replace batteries in the remote control or initialise the LCD memory (☞p.5), it is necessary to re-set the TV code, if your television is not a Code 1 JVC TV.

To Control Your Television With Buttons Exclusively For TV

- Press OPERATE (TV) to turn the TV power on.
- Press MONITOR (TV/VIDEO) to switch the TV between TV and VIDEO (or AV) mode.
- Press TV PROGRAM (TV) to select the TV's channel.
- Press TV VOLUME to adjust the TV's sound volume.

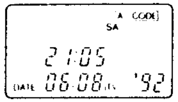
NOTES:

- The TV PROGRAM (TV) button does not function with televisions using Code 3.
- The MONITOR (TV/VIDEO) button does not function with televisions using Code 4.
- With some televisions, the OPERATE (TV) button functions only to turn the TV power off, and the MONITOR (TV/VIDEO) button functions only to switch the TV to the VIDEO (AV) mode.

To Control Your Television With Additional Buttons

The numeric keys can also be used to select the TV's channel by setting the remote control to the TV mode.

1. Press TV/VIDEO CODE.
   - "TV" will appear on the LCD.
2. Use the numeric keys and +/– to select the TV's channel while "TV" is on the LCD.



- With televisions using Code 1, 4, 5, 7, 8 or 9, both the +/– buttons correspond to the 1-digit/2-digit entry switching button (often labelled -/--) of your TV's remote control.
- With televisions using Code 2, 6, or 0, the – button corresponds to the 10+ button, and the + button, to the 20+ button of your TV's remote control.

NOTE:

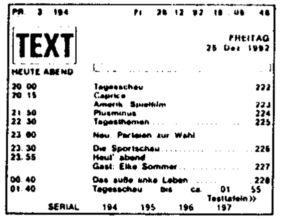
The way these buttons are used is determined by your TV. Use these buttons as instructed for your TV's remote control.

Using The Optional Teletext Adapter

Teletext services have established themselves as one of the most flexible sources of information and broadcast schedules available to TV and video users. Your video recorder is ready to take full advantage of these services. By connecting an optional teletext adapter (☞ Specifications), you'll not only be able to view the vast number of teletext pages now available, you'll be able to transfer broadcast schedule data directly to your recorder's timer for instant, automatic timer programming. You'll also be able to make full use of your remote control's capabilities, with all the dual or triple function controls working as intended. Here are just a few examples of features available to you when you connect an optional teletext adapter.

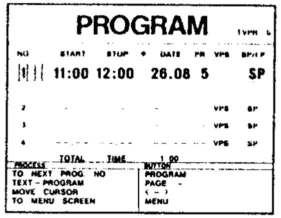
TELETEXT

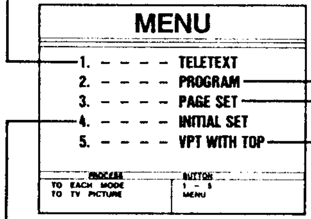
- View broadcast teletext pages.
- Several page access modes are available for quick, convenient location of pages you want to see.
- You can program the video recorder's timer directly using TV schedule pages.


PR 3 194 Fr 26 12 92 18 06 48
TEXT
FREITAG
26 Dez 1992
HEUTE ABEND
20 00 Tagesschau 222
20 15 Caprice
Amerik. Spielfilm 223
21 50 Plusminus 224
22 30 Tagesthemen 225
23 00 Neu: Parteien zur Wahl
23 30 Die Sportschau 226
23 55 Heut' abend
Gast: Elke Sommer 227
00 40 Das süße linke Leben 228
01 40 Tagesschau bis ca. 01 55
Testtafeln »
SERIAL 194 195 196 197

PROGRAM

- Check timer recording data on the colour on-screen display.
- Program the timer manually with the remote's numeric keys.


PROGRAM
NO START STOP DATE PR VPS SP/LP
1 11:00 12:00 26.08 5 SP
2 VPS SP
3 VPS SP
4 VPS SP
TOTAL TIME 1 00
PROCESS
BUTTON
TO NEXT PROG. NO
PROGRAM
TEXT - PROGRAM
PAGE
MOVE CURSOR
(-)
TO MENU SCREEN
MENU


MENU
1. - - - - TELETEXT
2. - - - - PROGRAM
3. - - - - PAGE SET
4. - - - - INITIAL SET
5. - - - - VPT WITH TOP
PROCESS
BUTTON
TO EACH MODE
1 - 5
TO TV PICTURE
MENU

PAGE SET

- You can preset favourite or often-referred-to pages for immediate access.
- Up to four pages can be stored on each of the numeric keys, for a total of 40 pages.

VPT WITH TOP

- TOP automatic teletext timer programming.
- Convenient colour-coded page access.

*"5.– – – – VPT WITH TOP" only appears when the video recorder's tuner is tuned to a station transmitting TOP broadcasts. (Applicable only in certain areas.)

INITIAL SET

LANGUAGE

- Select one of four languages (English, German, Italian, or Swedish) for on-screen messages.

CLOCK ADJUST

- Set the recorder's clock manually using the numeric keys.
- Set the recorder's clock automatically by reading teletext time information.

ATTENTION

Some buttons on the remote control unit are labelled with pictograms indicating the functions that can be used when the VPT adapter is connected. When reading the VPT adapter's instruction manual, keep in mind the correspondence between these pictograms and the labels referred to in the instruction manual:

⇳ : LARGE/NORMAL
⍰ : REVEAL
◷ : TIMED PAGE
⊕ : RESET
⏸ : HOLD
◩ : MIX
→ : ROTATE

Display Panel Messages

Messages not appearing elsewhere in this manual are listed here. More common messages are all clearly illustrated in the relevant sections.

Displayed Message	When It Appears, What It Means
During Clock Set	
31/12 10:30	"31st December, 10:30" is successfully transferred.
During Program Set	
VPS ON	"VPS" status is changed from OFF to ON. Displayed for 2 seconds.
VPS OFF	"VPS" status is changed from ON to OFF. Displayed for 2 seconds.
During Channel Set	
REAL CC 02	"Real Channel 02 in CC band" is stored.
REAL CC :15	"Real Channel 15 in CC band" is received, but not stored.
FINE CC 15	"Fine tuning" is engaged for "Real Channel 15 in CC band"
During Normal Operation	
SPEED SP	Tape speed is changed from LP to SP. Displayed for 5 seconds.
SPEED LP	Tape speed is changed from SP to LP. Displayed for 5 seconds.
AUDIO DUB	Audio dubbing is in progress.
A DUB P	Audio dubbing is paused.
AUX INPUT	External input is selected.
AUX INPUT 2	External input 2 is selected by pressing the SIMUL/AUX 2 button from AUX INPUT.
FRONT AV	External input via front panel INPUT V/L/R is selected.
SIMULCAST	Simulcast recording is selected by pressing the SIMUL/AUX 2 button. Displayed for 5 seconds.
REC SP AUX	Recording "External Input" via AUDIO/VIDEO in the SP mode.
REC LP AUX	Recording "External Input" via AUDIO/VIDEO in the LP mode.
REC SP AU2	Recording "External Input" via AUDIO IN in the SP mode.
REC LP AU2	Recording "External Input" via AUDIO IN in the LP mode.
PAUSE AUX	Recording is paused during REC SP (or LP) AUX.
PAUSE AU2	Recording is paused during REC SP (or LP) AU2.
REC VPS	VPS recording is in progress.
SKIP	Skip Search is started. Displayed for 5 seconds.
BLANK	Blank Search is started. Changes to REMAIN after 5 seconds.
INDEX +9	Searching for the 9th index code in the forward direction.
INDEX -4	Searching for the 4th index code in the reverse direction.
MARK	Index code is being marked.
REPEAT	Blinking during rewind for Repeat Playback.

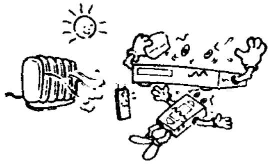
Displayed Message	When It Appears, What It Means
During Next Function Memory	
REW -- OFF ⤵ OFF	Will rewind to the beginning and then shut off automatically.
REW -- PLAY ⤵ PLAY	Will rewind to the beginning and then start playback automatically.
REW -- TIMER ⤵ TIMER	Will rewind to the beginning and then enter the timer mode automatically.
REW -- EJECT ⤵ EJECT	Will rewind to the beginning and then eject the tape automatically.
Clock and Counter Displays	
4:30:15	Tape counter reading of "4 hours, 30 minutes, 15 seconds".
31/12 10:30	It is 31st December, 10:30. (Standard date/time display when recorder power is turned off)
31/12 🔒 10:30	Same as above with Child Lock ON.
REC LP 1:30	Recording in the LP mode with the Off Timer set to shut off in 1 hour 30 minutes.
TIMER 🔒 10:30	It is 10:30 and the Timer Standby mode is engaged with Child Lock ON.
VPS 12:59	It is 12:59 and the VPS standby mode is engaged.
VPS 🔒 12:59	Same as above with Child Lock ON.
SET CLOCK 🔒	The clock is not set. Please set it. The recorder is locked with Child Lock ON..
Other Messages	
GOOD ⤵ MORNING GOOD ⤵ AFTERNOON GOOD ⤵ EVENING	Automatic greetings when the recorder is turned on.
GOOD-BYE GOOD NIGHT	Automatic greetings when the recorder is turned off.

NOTE:

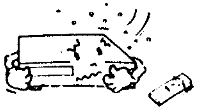
This list represents the various types of messages your recorder is capable of generating. Actual messages displayed by your recorder (esp. if date, time, channel, tape counter reading, or other variables are involved) will differ slightly from those listed here.

Precautions

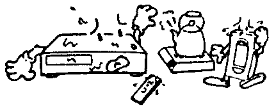
Recorder, Remote Control, And Cassette Care



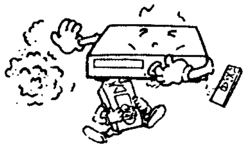
Avoid extreme heat and direct sunlight



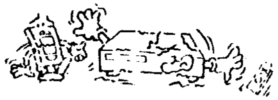
Avoid extreme cold



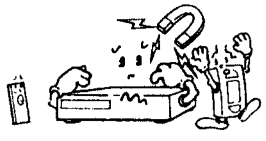
Avoid extreme humidity



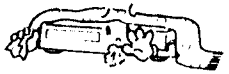
Avoid dust



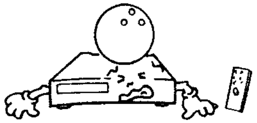
Avoid places subject to vibrations



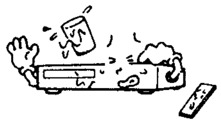
Avoid strong magnetic fields



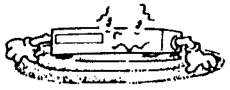
Do not block the recorder's ventilation openings



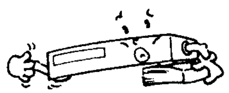
Do not place anything heavy on the recorder or remote control



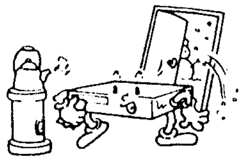
Do not place anything which might spill on top of the recorder or remote control



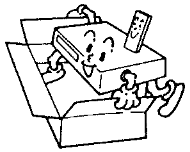
Do not place the recorder on cushions, pillows, or thick carpeting



Use the recorder in a stable, horizontal position only

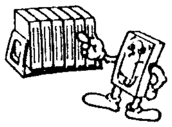


Beware of moisture condensation
Moisture in the air will condense on the recorder when you move it from a cold place to a warm place, or under extremely humid conditions — just as water droplets form on the surface of a glass filled with cold liquid. Moisture condensation on the head drum will cause damage to the tape. In conditions where condensation may occur, keep the recorder's power turned on for a few hours to let the moisture dry.



When transporting

- Be sure to remove cassette from recorder before packing
- Avoid violent shocks to the recorder during packing and transport



Place cassettes in cassette cases and store vertically

Specifications

GENERAL

Power requirement : AC 220 – 240 V∿, 50/60 Hz
Power consumption : 34 W
Temperature : 5°C to 40°C (Operating)
: –20°C to 60°C (Storage)
Operating position : Horizontal only
Dimensions (WxHxD) : 435 x 107 x 345 mm
Weight : 6.0 kg
Format : VHS PAL standard
Tape width : 12.65 mm
Tape speed (SP) : 23.39 mm/sec
Tape speed (LP) : 11.70 mm/sec
Maximum recording time (SP) : 240 min. with E-240 video cassette
(LP) : 480 min. with E-240 video cassette

VIDEO

Signal system : PAL colour and CCIR monochrome signals, 625 lines/50 fields
Recording system : Rotary two-head helical scan system with slant double-azimuth combination video heads
Input : 0.5 to 2.0 Vp-p, 75 ohms, unbalanced
Output : 1.0 Vp-p, 75 ohms, unbalanced
Signal-to-noise ratio : 43 dB (Rohde & Schwarz noise meter)
Horizontal resolution : 250 lines

AUDIO

Input : Mic:–67 dBs, high impedance, unbalanced
: AUDIO IN connector (RCA x 2): –8 dBs, 50 k-ohms, unbalanced
: AUDIO/VIDEO socket (21-pin Peri connector):–3.8 dBs, (CENELEC standard), 10 k-ohms, unbalanced
Output : AUDIO OUT connector (RCA x 2): –6 dBs, high-impedance load less than 1 k-ohm, unbalanced (100 k-ohms, load)
: AUDIO/VIDEO socket (21-pin Peri connector):–3.8 dBs, (CENELEC standard), high-impedance load less than 1 k-ohm, unbalanced

NORMAL AUDIO

Recording system : Longitudinal track
No. of audio channels : 1 (monaural)
Frequency range : 70 Hz to 10,000 Hz

Hi-Fi AUDIO

Recording system : Deep-layer recording system conforming to stereo Hi-Fi VHS standard
No. of audio channels : 2 Hi-Fi audio channels
Frequency response : 20 Hz to 20,000 Hz
Dynamic range : More than 90 dB
Wow and flutter : Less than 0.005% WRMS

TUNER

Tuning system : Frequency synthesized tuner
TV channel storage capacity : 48 positions (+ AUX position "AU")
Channel coverage : VHF 47 – 111 MHz
111 – 300 MHz
302 – 470 MHz
(Hyper band for PAL)
UHF 470 – 862 MHz
Aerial output : UHF channel 36
(adjustable 32 – 40)

TIMER

Clock reference : Quartz-crystal
Programme capacity : 1-year/8-programme timer
Memory backup time : 60 min.

ACCESSORIES

Provided accessories : Aerial cable
Infrared remote control unit
"R6" battery x 2
Optional accessories (EG) : VPV adapter VU-V120E
VPT adapter VU-V140E
Optional accessories (E) : VPS adapter VU-V110E
VPV adapter VU-V120E
VPS/VPV adapter VU-V100E
VPT adapter VU-V140E
VPS/VPT adapter VU-V150E

Specifications shown are for SP mode unless otherwise specified.
Design and specifications subject to change without notice.

In Case Of Difficulties

POWER AND TAPE TRANSPORT PROBLEMS

Symptoms	Check points
No power is applied to the recorder.	■ Is the power cord disconnected? — Connect it.
Clock is functioning properly, but the recorder cannot be powered.	■ Is "TIMER" displayed on the display panel? — Press the TIMER button to extinguish the display.
Tape does not run during recording.	■ Is "PAUSE" displayed on the display panel? — Press the PLAY button to extinguish the display.
Tape stops during rewind or fast-forward.	■ Is the C. MEMORY button pressed? — Press again to make "M" disappear from the display panel.
Tape will not rewind or fast forward.	■ Is the tape already fully rewound or fast-forwarded? — Check the cassette.

RECORDING PROBLEMS

Symptoms	Check points
Recording cannot be started.	■ Is a cassette loaded? ■ Is the safety tab on the cassette removed? — Reseal the slot with adhesive tape.
TV broadcasts cannot be recorded.	■ Has "AUX" been selected? — Set to the desired channel.
Tape-to-tape editing is not possible.	■ Is the VideoMovie or another video recorder correctly connected? ■ Are all necessary power switches turned ON? ■ Has "AUX" been selected? — Set to "AUX".
Camera recording is not possible.	■ Is the VideoMovie correctly connected? ■ Has "AUX" been selected? — Set to "AUX".
Timer recording is not possible.	■ Have you set the clock correctly and programmed the timer correctly? — Check once again. ■ Is "TIMER" displayed on the display panel? — If not, press the TIMER button to display "TIMER".

PLAYBACK PROBLEMS

Symptoms	Check points
Playback picture does not appear while the tape is running.	■ If you are using RF OUT connection, is the TV receiver's channel selector set to the correct video channel? — Set it to the RF converter channel (UHF 36). (☞p.8) ■ If you are using AV connection, is the TV receiver set to the AV mode? — Set it to the AV mode.
Playback is repeated.	■ Is the REPEAT switch set to either FULL or INDEX? — Set it to OFF.
Noise appears during visual search.	■ This is normal.
Noise appears during normal playback.	■ Is the automatic tracking mode engaged? — Try manual tracking. (☞p.20)
Noise appears during slow motion playback.	— Try manual tracking. (☞p.20)
Noise appears during still playback.	— Press Pause/Still a few times to remove the noise bars from the screen.
Playback picture is blurred or interrupted while TV broadcasts are clear.	■ Video heads may be dirty Head cleaning is necessary. Consult your JVC dealer. (☞p.43)

Hi-Fi AUDIO PROBLEMS

Symptoms	Check points
TV sound cannot be recorded on Hi-Fi audio track.	■ Has the SIMUL/AUX 2 button been pressed? — Check by pressing OSD. If "SIMUL" appears on the screen, cancel it by pressing SIMUL/AUX 2 button.
Breaks are noticeable in Hi-Fi audio reproduction.	■ Is the automatic tracking mode engaged? — Try manual tracking. (☞p.20)

OTHERS

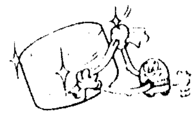
Symptoms	Check points
Whistling or howling is heard from TV during camera recording.	■ Move VideoMovie or camera's microphone away from TV or reduce TV sound volume.
Remote control's LCD clock time cannot be transferred to the recorder.	■ Is "TIMER" displayed on the display panel? — Press the TIMER button to extinguish the display.
Some channels are skipped over when scanning channels.	■ Those channels are preset to be skipped over. If you need them, restore them. (☞p.36)
Channel cannot be switched.	■ Is recording in progress? Press the PAUSE/STILL button, change the channel, and press the PLAY button.
Remote control does not function.	■ Are the batteries discharged? — Replace with new ones. ■ Is the A/B CODE indicator showing the proper code for the recorder being operated? — Press the A/B CODE button for the correct setting.
The remote control's time display changed to "0:00" and is blinking.	— The remote control's batteries are exhausted. Replace all the batteries and set the clock again.

ATTENTION:

This recorder contains microcomputers. External electronic noise or interference could cause malfunctioning. In such cases, switch the power off and unplug the power cord. Then plug it in again and switch on. Take out the cassette. After checking the cassette, operate the unit as usual.

Special Note On Head Cleaning

Accumulation of dirt and other particles on the video heads may cause the playback picture to become blurred or interrupted. Although this model is equipped with a built-in head cleaner which automatically cleans the heads, reducing the likelihood of dirty heads, if such troubles are encountered please consult the nearest JVC dealer.



Auto Head Cleaner

A built-in head cleaner automatically cleans the video heads and head drum whenever a tape is loaded or unloaded to reduce head clogging.

SECTION 1
DISASSEMBLY AND MECHANISM ADJUSTMENT

1.1 DISASSEMBLY

1.1.1 Top cover

1. Take out 4 screws Ⓐ and a screw Ⓑ.
2. To remove the top cover, slide in direction of arrow and lift away.

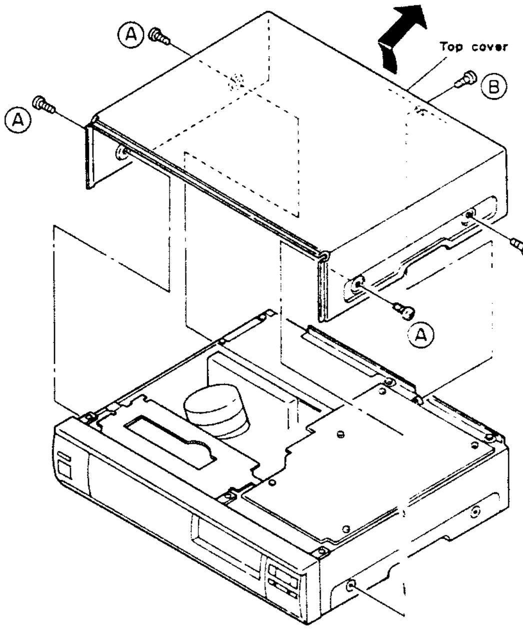


Fig. 1-1-1 Top cover

1.1.2 Front panel assembly

1. Remove the top cover.
2. Carefully disengage 3 tabs ⓐ of the front panel assembly from the upper side of the chassis.
3. Pull the front panel assembly forward you to disengage 3 tabs ⓑ of the front panel assembly from the bottom of the chassis, then remove the front panel assembly.

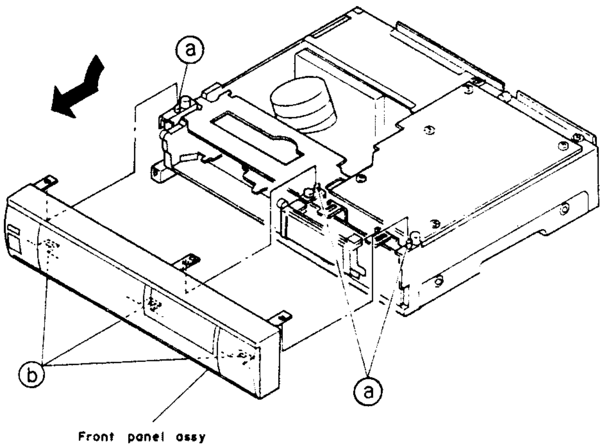


Fig. 1-1-2 Front panel assembly

1.1.3 Bottom cover

1. Remove the top cover.
2. Take out 5 screws Ⓒ and 4 foots.
3. Disengage 4 claws ⓐ from the bottom of the chassis.
4. Disengage the bottom cover from the bottom of the chassis.

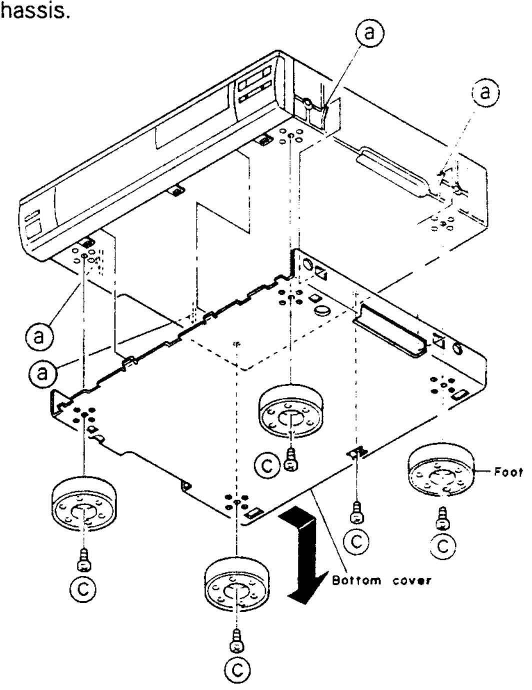


Fig. 1-1-3 Bottom cover

1.1.4 MAIN board assembly

1. Remove the top cover.
2. Take out 3 screws Ⓓ, 2 screws Ⓔ and 1 screw Ⓕ.
3. Remove the MAIN board assembly in the direction of arrow.

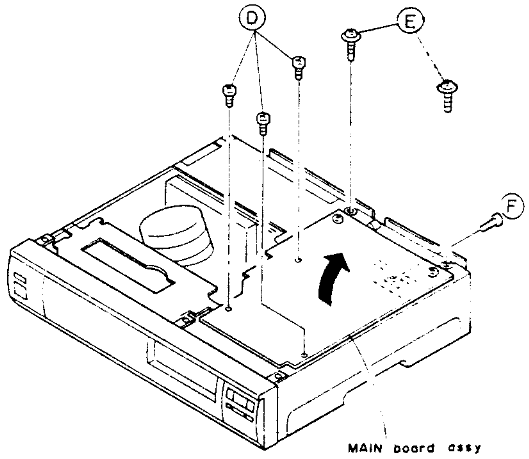


Fig. 1-1-4 MAIN board assembly

1.1.5 SWITCHING REGULATOR board assembly

1. Remove the top cover.
2. Take out 4 screws Ⓓ.
3. Disconnect connectors CN1 and CN2.
4. Remove the SWITCHING REGULATOR assembly in direction of arrow.

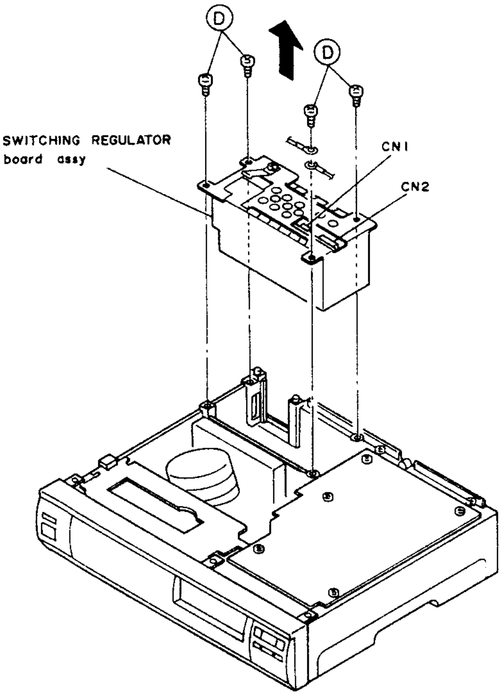

Ⓓ
Ⓓ
SWITCHING REGULATOR board assy
CN1
CN2

Fig. 1-1-5 SWITCHING REGULATOR board assembly

1.1.6 Cassette housing assembly

1. Remove the top cover, front panel, MAIN board assembly.
2. Take out 4 screws Ⓖ.
3. Remove the cassette housing assembly in direction of arrow.

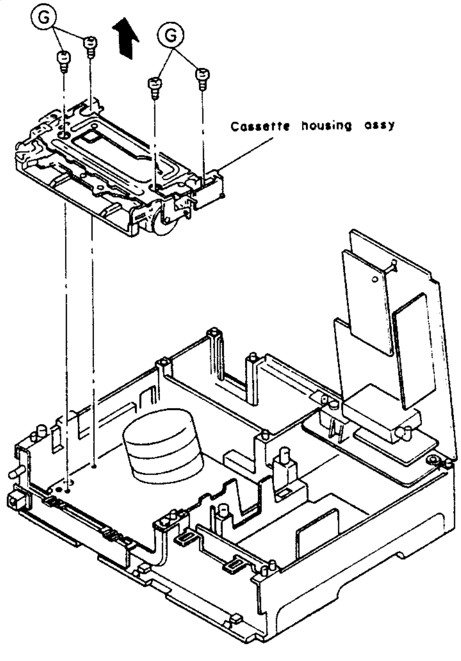

Ⓖ
Ⓖ
Cassette housing assy

Fig. 1-1-6 Cassette housing assembly

1.1.7 Cassette housing installation

Note: ***Observe the mechanical phase and position (see figure) when installing the cassette housing assembly. If these are incorrect, the system will not operate properly even when tape is inserted.***

1. Check that the marks of the control cam and pinch roller cam are aligned. If necessary, turn the worm clutch by hand to adjust the position.

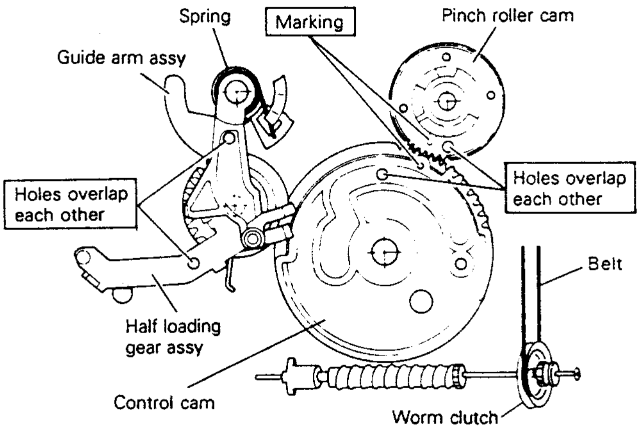

Spring
Marking
Pinch roller cam
Guide arm assy
Holes overlap each other
Holes overlap each other
Belt
Half loading gear assy
Control cam
Worm clutch

Fig. 1-1-7 Control cam and pinch roller cam position

2. Confirm that the clutch of the worm clutch assembly is locked. If necessary, engage the locked.

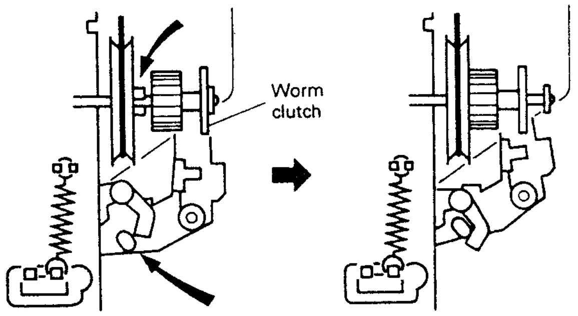

Worm clutch

Fig. 1-1-8(a) Not locked **Fig. 1-1-8(b)** Lock engaged

3. Install the front panel as shown in Fig. 1-1-9 and reengage the tabs. Supply power and use a spare cassette to check for normal loading and eject operations.

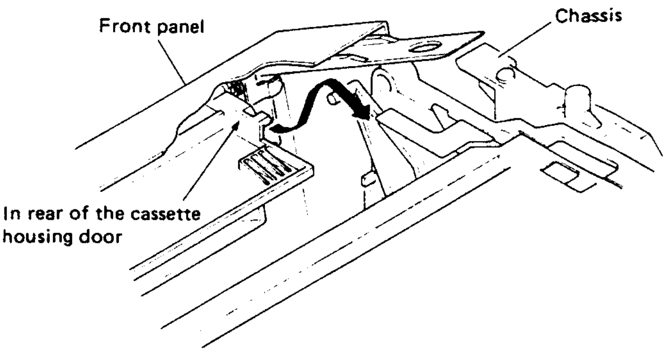

Front panel
Chassis
In rear of the cassette housing door

Fig. 1-1-9 Cassette housing door

1.1.8 SWITCH/DISPLAY board assembly

1. Remove the top cover and front panel.
2. Disengage 2 claws ⓐ from the chassis.
3. Disengage 2 claws ⓑ, then remove the SWITCH/DISPLAY board assembly in direction of arrow.

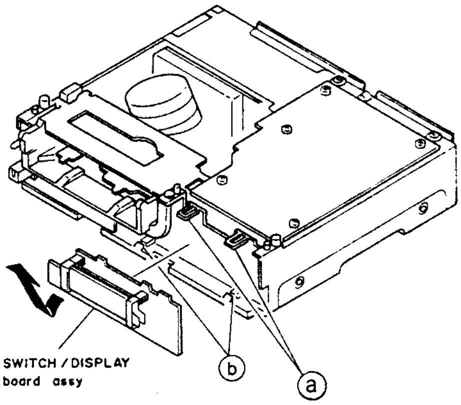

SWITCH / DISPLAY
board assy
b
a

Fig. 1-1-10 SWITCH/DISPLAY board assembly

1.1.9 PRE/REC board assembly

1. Remove the top cover.
2. Disconnect connectors CN1, CN201 and CN202 from the PRE/REC board assembly.
3. Take out 3 screws Ⓗ.
4. Remove the shield cover, and Disconnect CN203.
5. Remove the PRE/REC board assembly in direction of arrow.

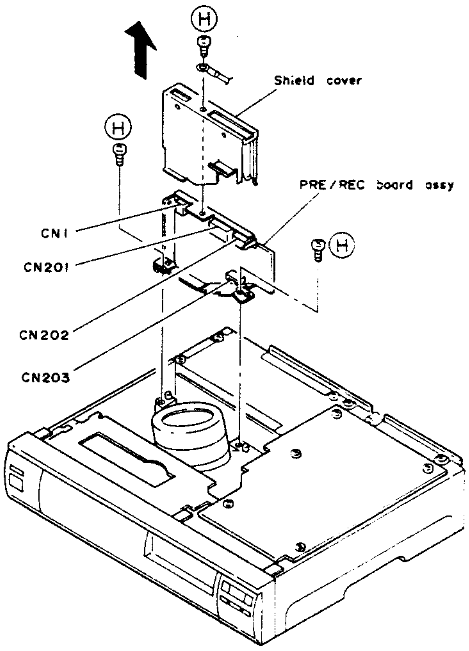

H
Shield cover
H
PRE / REC board assy
CN1
CN201
H
CN202
CN203

Fig. 1-1-11 PRE/REC board assembly

1.1.10 Main deck assembly

1. Remove the top cover, front panel, MAIN board assembly, PRE/REC board assembly and cassette housing assembly.
2. Take out 3 screws Ⓙ and disengage 2 claws ⓐ from the chassis.
3. Remove the main deck assembly in direction of arrow.

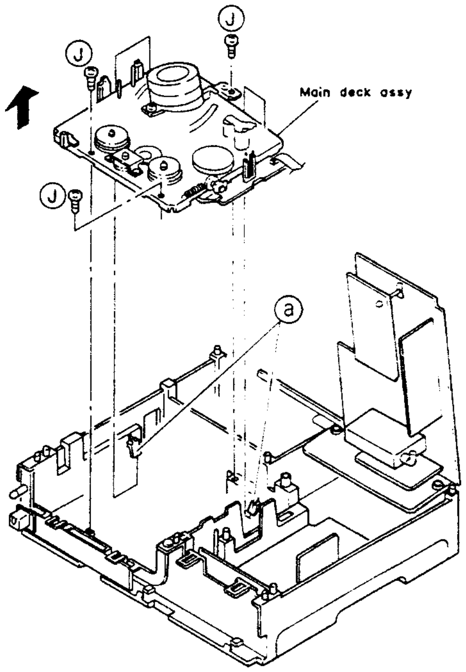

J
J
Main deck assy
J
a

Fig. 1-1-12 Main deck assembly

1.2 MECHANISM ADJUSTMENTS

1.2.1 Precautions

1. Disconnect mainframe from AC power before soldering.
2. Avoid imparting stress to wires when disengaging connectors.
3. Determine and correct the cause of difficulty before proceeding to adjustments. Do not disturb settings unnecessarily.
4. Use care not to damage tabs, claws, etc. during repairs.
5. Install the cassette housing assembly only when the mechanism is in the Eject or Stop mode position. In the Eject mode, the internal holder of the housing is fully raised. This is fully lowered in the Stop mode.
6. When installing the front panel assembly, be sure to engage the housing door with the door lever of the cassette housing assembly. If this step is omitted, the door will not open at Eject and the cassette cannot be removed.

1.2.2 Check without cassette housing

Mechanism operations can be observed easily by removing the cassette housing assembly. Note the following.

1. Disable the photo transistor sensor (END SENSOR) on the main-deck by applying an opaque cover.
2. Connect pins 2 and 3 of MAIN board connector CN601.
3. Select the desired modes with the operation buttons. However, notice that without tape, setting for the reverse direction modes produces the Stop mode after a few seconds due to absence of the reel sensor output.

1.2.3 Manually removing cassette tape

In event of electrical system failure that prevents the tape from being unloaded, the tape can be removed manually by the following procedure. Refer to Figs. 1-3-1, 1-3-2 and 1-3-3.

1. Disconnect power cord from AC outlet.
2. Turn the loading motor by hand so that the control cam rotates clockwise. This retracts the pole base assembly to the unloading position.
3. Continue turning to where the guide arm and half loading gear assemblies shift to beneath the cassette.
4. Turn the clutch assembly at the rear of the deck to absorb slack tape within the cassette.
5. Again turn the loading motor in the same direction to raise the cassette and remove it.

1.2.4 Test equipment

The following special tools and fixtures are required for mechanism adjustment.

1. Alignment tapes : MH-2 (SP) and MH-2L (LP)
   Stairstep signal is employed for interchangeability checks and adjustments.
2. Torque gauge : PUJ48075-2
   Measures tape take-up torque.
3. Back tension cassette gauge : PUJ48076-2
   Measures tape tension at the supply side.
4. A/C head positioning tool : PUJ47351-2
   Shifts the head base for adjusting the control head position.
5. Roller driver : PTU94002
   Turns the guide roller for adjusting FM linearity.
6. Presetting unit : PTU94008
   Use for LP auto tracking preset adjustment.

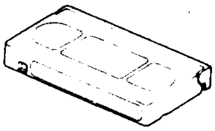
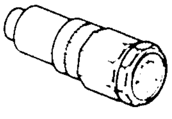
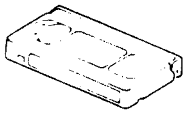
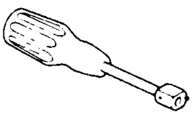
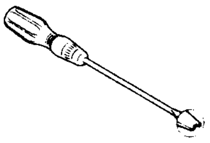
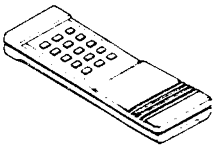
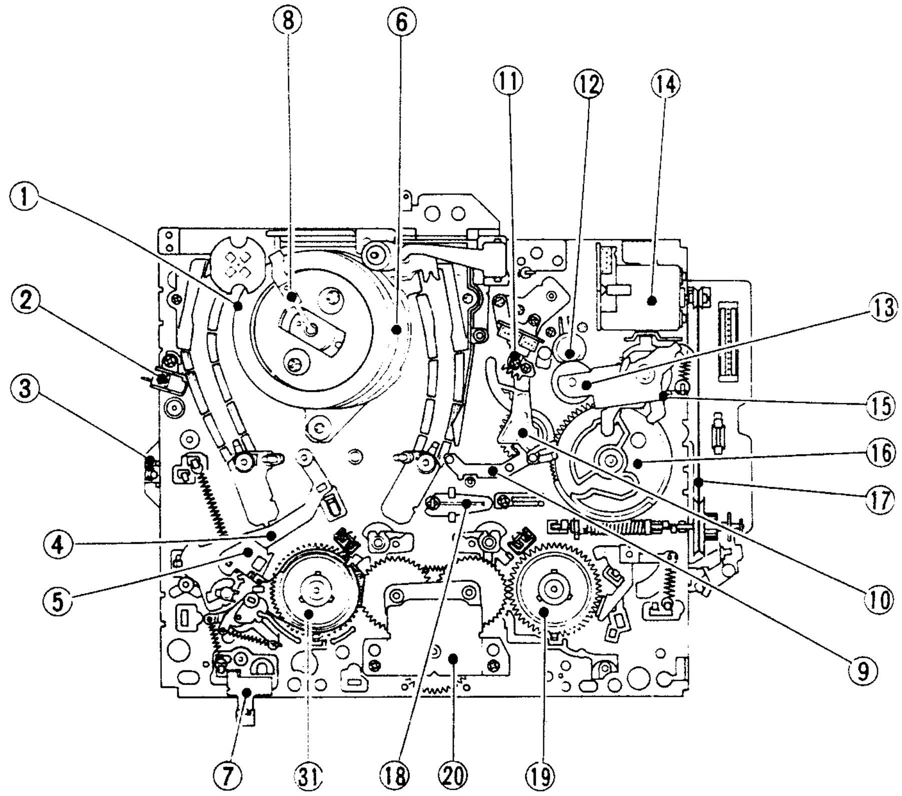
1 Alignment tape	2 Torque gauge	3 Back tension cassette gauge	4 A/C head positioning tool	5 Roller driver	6 Presetting unit
					

Fig. 1-2-1 Test equipment

1.3 MAIN MECHANISM PARTS



8
6
11
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14
1
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31
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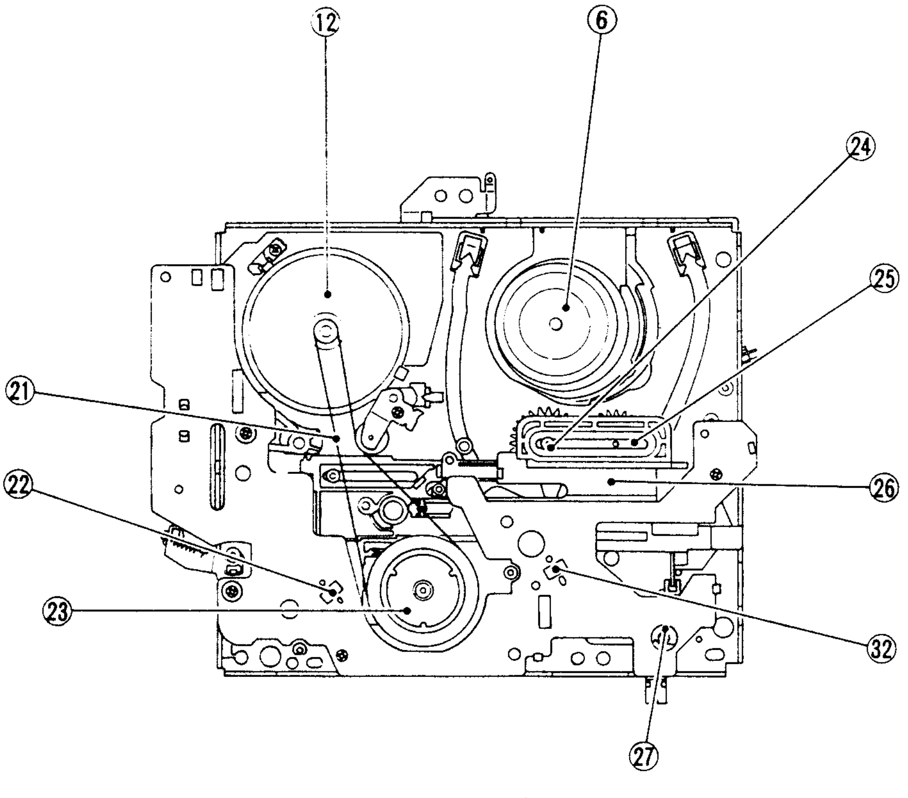
19

Fig. 1-3-1 Top view of main-deck



12
6
24
25
21
26
22
23
32
27

Fig. 1-3-2 Bottom view of main-deck

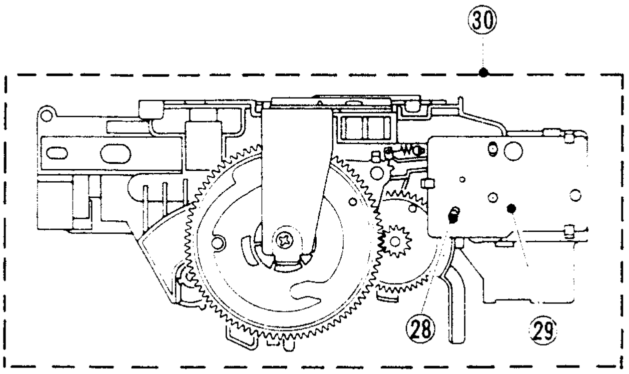


Fig. 1-3-3 Side view of cassette housing

A. Cleaning

Periodic cleaning of the tape transport system is desirable, but ordinarily not feasible in practice. Therefore, perform cleaning when a set is brought in for repairs or maintenance. Contamination of the video heads, tape guides and brushes can detract from playback picture quality and in extreme cases, even damage the tape. For cleaning, use a fine-mesh cotton cloth (about the texture of a white dress-shirt) moistened in alcohol.

- To clean the video heads, press the moistened cloth gently against the upper drum with fingertip and turn the drum by hand.
- Do not use a vertical stroke, as this may damage the heads.

B. Lubrication

Oil and grease do not normally require periodic replenshing. Apply only when replacing lubricated parts (also clean and replace lubrication of mating parts if soiled).

For parts and points to apply oil and grease, refer to the exploded views of the mechanism assembly.

Before oiling, clean with alcohol.
Apply one or two drops of oil. Avoid excess oil.

1. Table 1-3-1 indicattes the oil and grease used in this set. Use these or recommended locally available equivalent

Category	Part No.
Oil	COSMO-HV56
Grease	KANTO-G-31KAV

Table 1-3-1

2. Grease is not required for a replacement cassette housing assembly, as this has been applied at the factory.

Note: *Stir grease that has been stored for an extended period.*

C. Main mechanical parts

See Fig.s 1-3-1, 1-3-2 and 1-3-3.

No.	Symbol	Parts Name	See Section
1	M32A	Upper drum assy	1.5.1
2	M44	Full erase head	
3	51Q1	End sensor	
4	M41	Tension arm assy	1.5.4
5	M42	Tension band assy	1.5.4
6	M32C	Lower drum motor assy	1.5.2
7	M461	REC safety switch	
8	M32D	Brush assy	
9	M449	Half loading gear assy	1.5.5
10	M447	Guide arm assy	1.5.5
11	M48	A/C head	1.5.3
12	M422	Capstan motor	
13	M442	Pinch roller arm assy	
14	M434	Loading (Mode) motor assy	
15	M446	Pinch roller cam	1.5.5
16	M438	Control cam	1.5.5
17	M437	Loading belt	
18	M460	LED holder (D1)	
19	M430	Reel disk (take-up)	
20	M424	Idler gear unit	
21	M429	Timing belt	
22	51PS1	Take up reel sensor (PHS1)	
23	M426	Clutch unit	1.5.6
24	M433	Take up loading arm assy	1.5.7
25	M432	Supply loading arm assy	1.5.7
26	M439	Plate assy	1.5.7
27	M462	Slide switch (S3)	
28	56PHS3	Cassette sensor (PHS3)	
29	56Q2	Start sensor (Q2)	
30	M36	Cassette housing assy	
31	M470	Reel disk (supply)	
32	51PS2	Supply reel sensor (PHS2)	

- Symbol interpretation example

M32A
└ Ref. No.
└ Exploded view symbol

56 Q2
└ Ref. No.
└ Board No.

Table 1-3-2

1.4 INSPECTION AND MAINTENANCE

This product employs rotary and moving parts which wear out in the course of usage. Periodic inspection, cleaning, lubrication and maintenance are therefore important for ensuring maximum performance. Worn parts must also be replaced when required.

1.4.1 Suggested servicing schedule for main components

The following table indicates the suggested period for such service measures as cleaning, lubrication and replacement. In practice, the indicated periods will vary widely according to environmental and usage conditions. However, the indicated components should be inspected when a set is brought for service and the maintenance work performed if necessary.

Also note that rubber parts may deform in time, even if the set is not used.

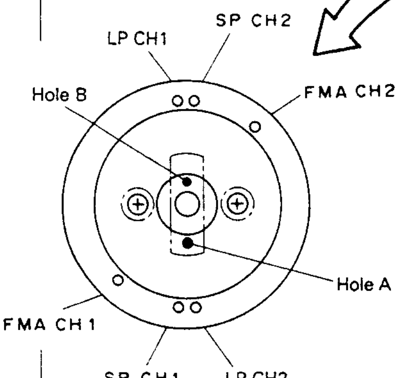
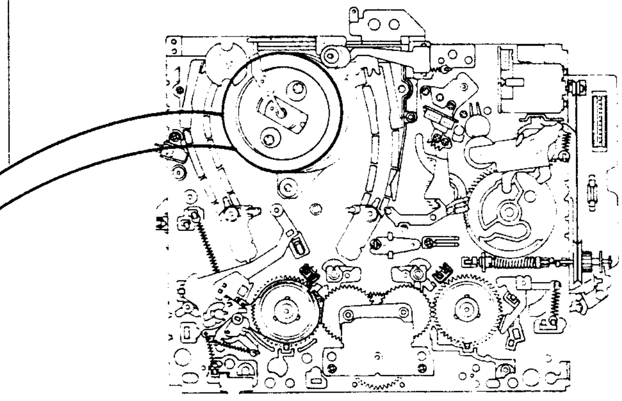
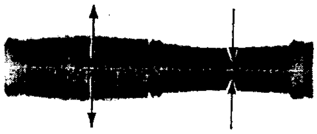
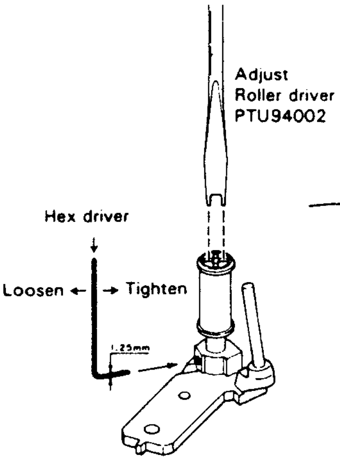
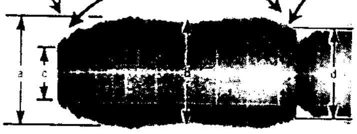
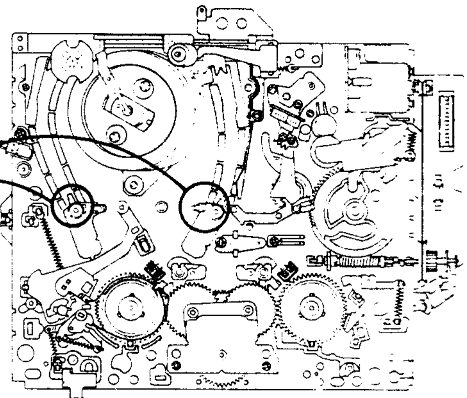
System	No.	Parts Name	Symbol No.	Periodic servicing schedule (operation hours)							
				250	500	750	1000	1250	1500	1750	2000
Tape Transport	1	Upper drum	M32A	★	★	☆	○	○	○	○	○
	11	A/C head	M48	★	★	★	○	○	○	○	○
	13	Pinch roller	M442	★	★	★	○	○	○	○	○
	2	Full erase head	M44	★	★	★	○	○	○	○	○
	4	Tension arm	M41	★	★	★	○ ★	○ ★	○ ★	○ ★	○ ★
	6	Lower drum	M32C								
	12	Capstan (shaft)	M422								
	9	Half loading gear	M449								
	10	Guide arm	M447								
Drive	12	Capstan motor	M422				○	○	○	○	○
	17	Loading Belt	M437				○	○	○	○	○
	21	Timing Belt	M429				○	○	○	○	○
	19	Take-up reel disk	M430				○	○	○	○	○
	31	Supply reel disk	M470				○	○	○	○	○
	23	Clutch assy	M426								○
	14	Loading motor	M434				○	○	○	○	○
		Worm clutch assy	M436								△
		Plate assy	M439								△
Others	5	Tension band	M42				○				○
	8	Brush	M32D				○				○

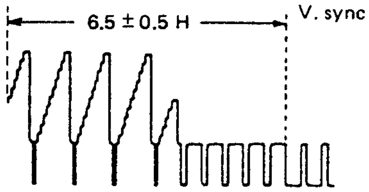
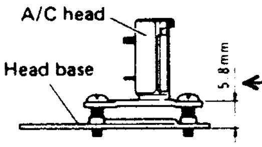
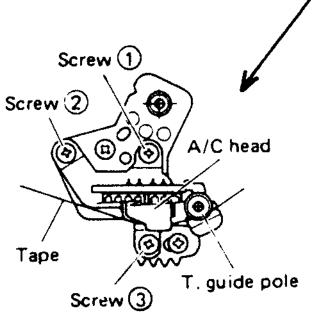
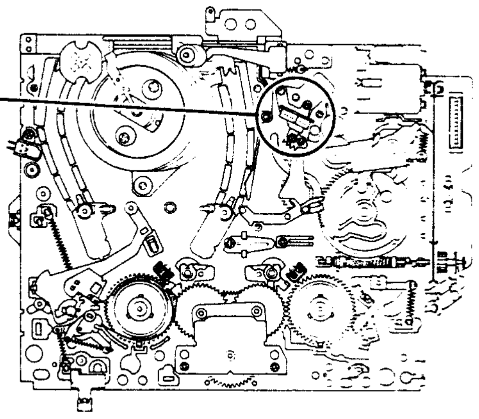
★ : Cleaning
☆ : Cleaning (or Replacement if necessary)
△ : Lubrication
No: Refer to Main mechanical parts

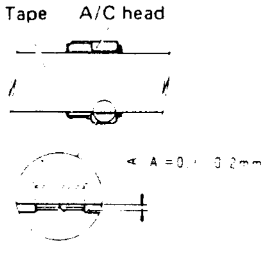
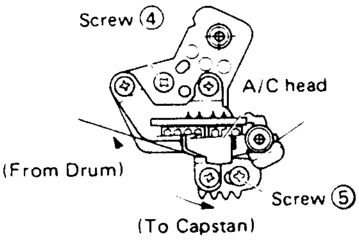
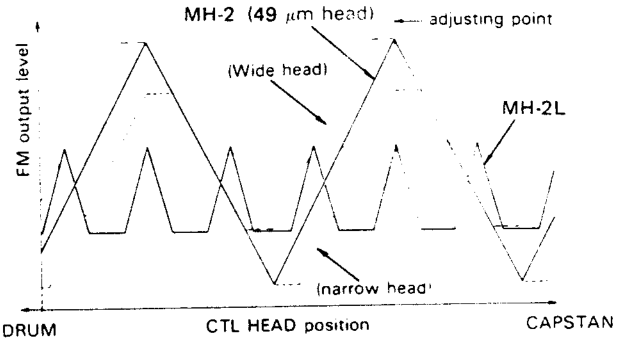
▲ : Lubrication (or Replacement if necessary)
● : Replacement
○ : Inspection or Replacement if necessary

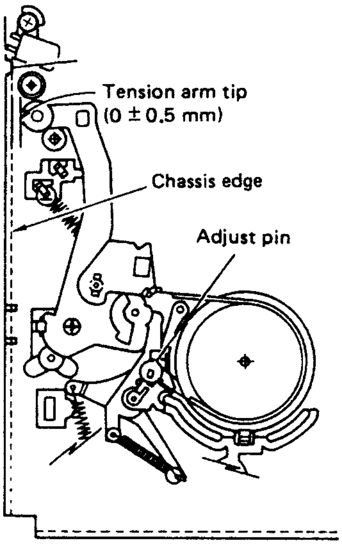
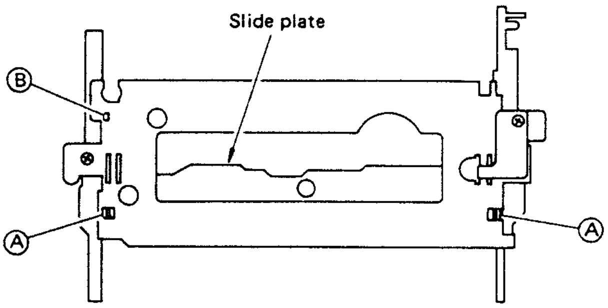
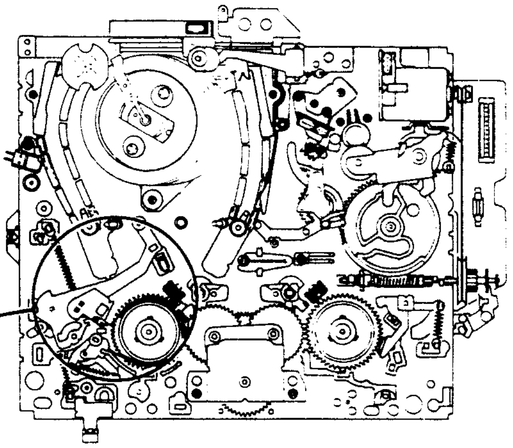
Table 1-4-1 Approximate maintenance schedule

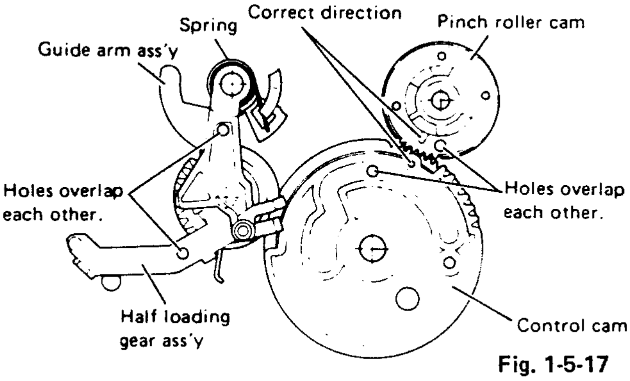
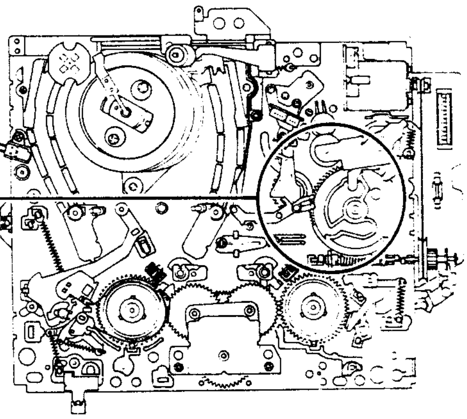
1.5 MAIN PARTS REMOVAL AND REPLACEMENT

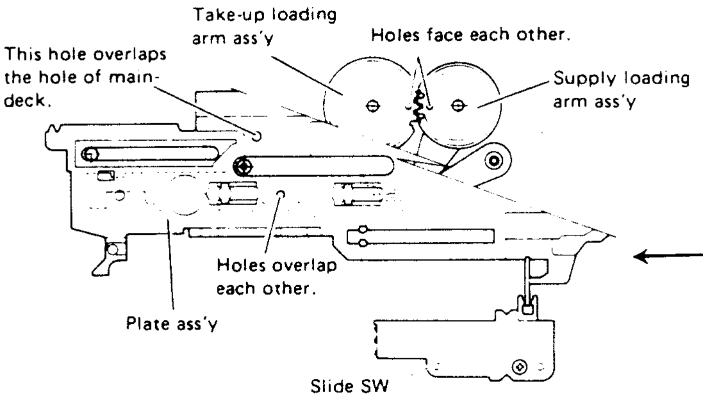
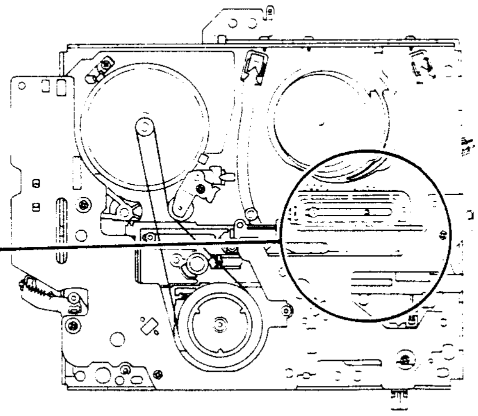
No.	Item	Checkpoints	Adjustment and Checks
1	Upper drum assembly •Symptoms: FM signal absent, intermittent or weak on one channel; large difference in channel output levels •Cause: Worn or damaged video heads, poor response, etc.  SP CH2 LP CH1 Hole B FMA CH2 Hole A FMA CH1 SP CH1 LP CH2 Fig. 1-5-1 DRUM TOP VIEW	 Fig. 1-5-2 Drum Position Mounting direction See Fig. 1-5-1. (Symptom: no picture)	After replacing, observe that upper drum hole A is opposite the motor axis from lower drum hole B.
		Axis wobble See Fig. 1-5-2. (Symptom: jitter, poor FM linearity) PB FM: MAIN board TP206 FF: MAIN board TP411	Record and playback in LP mode. Confirm absence of large difference between channels. (Fig. 1-5-3)  Fig. 1-5-3 Axis wobble
	 Adjust Roller driver PTU94002 Hex driver Loosen Tighten 1.25mm Fig. 1-5-4 S.T. Pole base	FM linearity check See Fig. 1-5-5. (Symptom: vertical sync absent, picture noise) PB FM: MAIN board TP206 FF: MAIN board TP411  Fig. 1-5-5 FM linearity $\frac{b}{a} \geqq 0.7$, $\frac{c}{a} \geqq 0.65$, $\frac{d}{a} \geqq 0.65$	 Fig. 1-5-6 S.T. Pole base position 1) Play stairstep signal of the MH-2 Alignment Tape. Confirm absence of obvious FM waveform loss and that operating the Tracking yields the optimum point. 2) Refer to Fig. 1-5-4, adjust for loss at the left edge (drum entry) of the FM waveform by turning the guide roller of the supply pole base. Similarly, adjust for loss at the right edge (drum exit) by turning the guide roller of the take-up pole base. **Note:** ***If FM loss occurs on both channels and cannot be corrected by adjusting the guide rollers, the lower drum needs replacement.***

No.	Item	Checkpoints	Adjustment and Checks
	PB switching point •Symptom: switching noise at picture bottom.  Fig. 1-5-7 PB Switching Point	VIDEO OUT or TP210 (MAIN board)	1) Connect VCR to AC. Turn power on. 2) Connect an oscilloscope to VIDEO OUT or TP210. 3) Insert the MH-2 alignment tape to the cassette housing. Play back the stairstep segment of MH-2 alignment tape. 4) Trigger the oscilloscope externally (– slope) with the signal from TP411 (DRUM FF) of the MAIN board. 5) Adjust R427 to position the trigger point 6.5 H ±0.5 H from V. sync as shown in Fig. 1-5-7.
2	Lower drum assembly •Symptoms: Poor FM linearity, noisy rotation, jitter •Cause: Lead and bearing wear	Check FM linearity and switching point.	See above upper drum assembly items.
		Check control head phase (X value) Symptom: tracking error PB FM: MAIN board TP206 FF: MAIN board TP411	1) Play stairstep signals of MH-2 and MH-2L Alignment Tapes. Engage the Tracking Preset mode by pressing the ∨ and ∧ buttons simultaneously in the onscreen mode. Confirm that the same maximum FM waveform level is obtained as when the tracking is adjusted manually. 2) Refer to the A/C head adjustments.
3	A/C head  Fig. 1-5-8 Temporary height  Screw ① Screw ② A/C head Tape T. guide pole Screw ③ Fig. 1-5-9 Inclination/Azimuth/ Height adj.	 Fig. 1-5-10 A/C HEAD position	
		Temporarily set height as indicated in Fig. 1-5-8.	Set the height as indicated in Fig. 1-5-8 to facilitate tape transport checks and adjustments.
		Tilt (forward inclination) See Fig. 1-5-9. (Symptom: audio level varies greatly.)	1) Run tape, turn screw ① counterclockwise to where slight curling of the tape occurs at the lower flange of the take-up guide roller. 2) Then slowly turn the screw clockwise to where the curling ceases.
		Azimuth See Fig. 1-5-9. (Symptoms: audio low level or noisy) Audio output: AUDIO OUT	1) Set front panel AUDIO MONITOR selector to Normal and play stairstep signal (with audio 6 kHz) of the MH-2 Alignment Tape. Observe audio output signal with oscilloscope. 2) Turn screw ② and adjust for maximum audio output level.

No.	Item	Checkpoints	Adjustment and Checks
	 **Fig. 1-5-11** Height Adj	Height See Figs. 1-5-9 and 1-5-11. (Symptom: low audio and control signal levels)	1) Run tape and observe the control head area. 2) Turn screws ①, ② and ③ by small and equal amounts until 0.1 to 0.2 mm of the head core bottom can be seen. Note: *If difficult to observe, play stairstep signal of MH-2 Alignment Tape and adjust for maximum audio output and control pulse level.*
		FM linearity	Refer to upper drum assembly items. If adjustment is major, again check the azimuth.
	 Screw ④ A/C head (From Drum) Screw ⑤ (To Capstan) **Fig. 1-5-12** CTL head phase  **Fig. 1-5-13** CTL head phase Note: *Trigger the oscilloscope externally signal from TP411 (DRUM FF). Use (+) trigger for MH-2 and MH-2L alignment tape. Narrow head is employed for this model.*	Control head phase See Fig. 1-5-12 PB FM: MAIN board TP206 FF: MAIN board TP411	1) Play stairstep signal of MH-2 Alignment Tape and observe the FM waveform. Set for Tracking Preset by pressing the + and − buttons simultaneously in the onscreen mode. 2) Loosen screws ④ and⑤. Set the A/C head positioning tool on screw ④, with the stud inserted into the nearby oblong hole. 3) Turn the tool first to position the A/C head fully toward the capstan. Then gradually return it toward the drum and stop at the position of maximum FM waveform output level as shown in Fig. 1-5-13. 4) Tighten screw ⑤ . Remove the tool and tighten screw ④. 5) Play stairstep signal of MH-2L Alignment Tape and confirm maximum FM waveform output level as shown in Fig. 1-5-13. 6) If not maximum, slightly loosen screws ④ and ⑤. Use the tool and adjust the head position for the nearest maximum point. Then tighten screws ④ and ⑤.
		LP auto tracking adjustment	1) Terminate the video output at 75 ohms with a monitor-TV and connect oscilloscope to PB FM (TP206). 2) Set MH-2L Alignment Tape into the cassette housing and play the stairstep signal. 3) Confirm that the A/V digital tracking LED changes from flashing to lighted. 4) Press button "D" of the preset unit (PTU 94008) to extinguish the A/V digital tracking LED. 5) Again press button "D" to enter the LP interchangeability adjust mode. Confirm that the A/V digital tracking LED changes from flashing to extinguished. Press the stop button. Note: *If the Alignment Tape ejects automatically, repeat the control head phase adjustment.*

No.	Item	Checkpoints	Adjustment and Checks
4	Tension arm assembly Tension band assembly  Tension arm tip (0 ± 0.5 mm) Chassis edge Adjust pin **Fig. 1-5-14** Tension arm assy  **Fig. 1-5-16** Cassette housing	Tension pole position See Fig. 1-5-14. (Symptom: poor FM waveform response)	 **Fig. 1-5-15** Tension arm position 1) Remove video cassette tape and set for the playback mode as following steps. 2) Disconnect VCR from AC. Slightly rotates the loading motor counterclockwise by hand, then press the lock level portion Ⓐ of the cassette housing by hand as shown in Fig. 1-5-16. 3) Move the raised portion of the cassette housing slide plate to fully forward by hand with loading motor. At this time, again press the lock level portion Ⓑ of the cassette housing slide plate to lower the cassette housing (internal holder of the cassette housing is locked in lowered position). 4) Cover the cassette LED with opaque material (insulated tape with black). 5) Connect VCR to AC. Press the power button on the Front panel and set for the playback mode. 6) Turn the eccentric adjust pin to align the edge of the chassis with the tension arm tip as shown in Fig. 1-5-14.
		Back tension (Symptom: skew)	1) When the tension pole position is correctly adjusted, the back tension will assume the correct value. 2) Use the Back Tension Cassette Gauge and set for the playback mode. Confirm reading of 35 g·cm to 48 g·cm. 3) Changing the tension pole position in order to vary the back tension will cause adverse effects elsewhere.

No.	Item	Checkpoints	Adjustment and Checks
5	Pinch roller cam Control cam Half loading gear assembly Guide arm assembly  Correct direction Spring Pinch roller cam Guide arm ass'y Holes overlap each other. Holes overlap each other. Half loading gear ass'y Control cam **Fig. 1-5-17** Control/Pinch roller cam	Important: Do not remove or disturb parts other than those mentioned. See Fig. 1-5-17.	Set mechanism to Eject mode internal holder of the cassette housing is locked in raised) position.  **Fig. 1-5-18** Control cam position 1) When installing the pinch roller cam, overlap the largest hole of the gear portion with the hole of the deck. 2) Set the control cam on the deck with the hole of the groove overlapped with the hole of the deck. Observe that the small hole of the control cam and the ridge of the pinch roller cam are aligned. (If the control cam does not fit readily, shift the rear plate assembly within the range of play.) 3) Install the half loading gear assembly with the hole overlapped with the hole of the deck. Secure with E-ring. 4) Install the guide assembly over the spring and with the hole overlapping that of the deck. Engage the spring correctly.
		Cassette housing assembly	Install the cassette housing assembly with the mechanism in the Eject mode. Also observe that the inner holder of the housing is raised and locked.
6	Clutch assembly	Take-up torque (Symptom: inadequate take-up torque)	1) Remove cassette housing and set for playback mode (see Section 1.2). 2) Set torque gauge on the take-up reel disk. Gradually relax your grip on the gauge and read the needle indication at the point the gauge begins to rotate with the disk. Confirm indication of 60 g·cm to 100 g·cm.

No.	Item	Checkpoints	Adjustment and Checks
7	Take-up loading arm assembly Supply loading arm assembly Plate assembly		Note: • *Set mechanism to the Eject or Stop mode before removing these parts.* • *The flange of the plastic rivet securing the loading arm assembly and the pole base assembly can be damaged by attempting to remove it directly. Press the loading arm assembly firmly to prevent motion. Then use a narrow-shafted tool to press the rivet from the shaft end to remove it.*
		Mounting position alignment • Remove the tension arm assembly to facilitate operation. See Fig. 1-5-19.	1) Set the supply and take-up loading arm assemblies so that the holes of the gear portions are aligned, then secure to the pole base assemblies with rivets. 2) Shift the plate assembly and install with the holes of the upper and lower components overlapped.
		Slide switch See Fig. 1-5-19.	Be sure to engage the slide switch slider with the edge of the plate assembly.
		 Take-up loading arm ass'y Holes face each other. This hole overlaps the hole of main-deck. Supply loading arm ass'y Holes overlap each other. Plate ass'y Slide SW **Fig. 1-5-19**	 **Fig. 1-5-20** T.S. Loading arm position

SECTION 2
ELECTRICAL ADJUSTMENTS

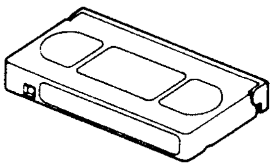
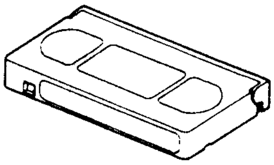
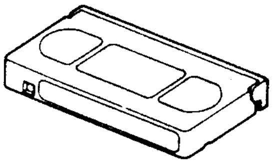
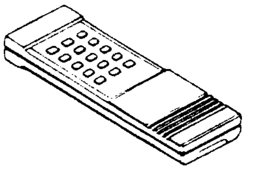
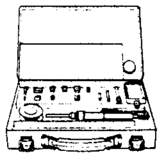
2.1 PREPARATION

Electrical adjustments are required after replacing circuit components and certain mechanical parts.
It is important to perform these adjustments only after all repairs and replacements have been completed. Also, do not attempt these adjustments unless the proper equipment is available.

2.1.1 Required test equipment

1. Colour television or monitor
2. Oscilloscope: wide-band, dual-trace, triggered delayed sweep
3. Frequency counter
4. Audio oscillator
5. Audio voltmeter
6. Digital voltmeter
7. Signal generator: RF/IF sweep/marker
8. Signal generator: PAL/SECAM colour bar, stairstep
9. Distortion meter
10. Recording tape

2.1.2 Required adjustment tools

Alignment tape (SP) MH-2	Alignment tape (LP) MH-2L
	
Alignment tape (FM AUDIO) MH-F2	Presetting unit PTU94008
	
*SMC replacement tools YTU94038B	
	

NOTE:** ***It is convenient for replacing chip parts.

2.1.3 Colour bar signal and pattern

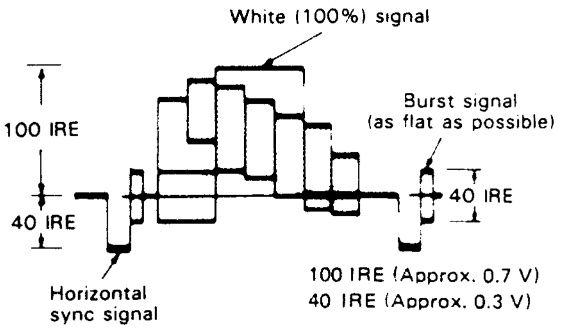

White (100%) signal
Burst signal (as flat as possible)
100 IRE
40 IRE
40 IRE
Horizontal sync signal
100 IRE (Approx. 0.7 V)
40 IRE (Approx. 0.3 V)

Fig. 2-1-1 Colour bar signal of pattern generator

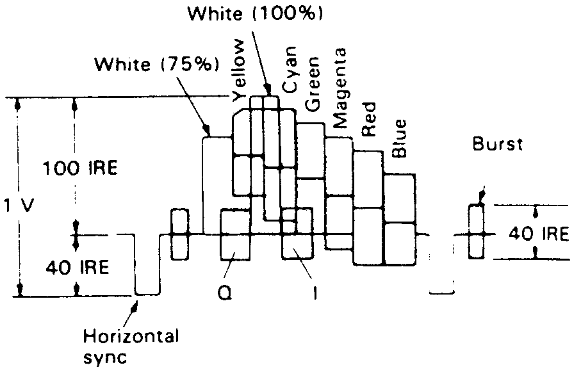

White (100%)
White (75%)
Yellow
Cyan
Green
Magenta
Red
Blue
Burst
100 IRE
1 V
40 IRE
40 IRE
Q
I
Horizontal sync

Fig. 2-1-2 Colour bar signal waveform

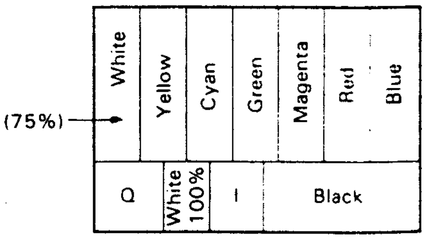

White
Yellow
Cyan
Green
Magenta
Red
Blue
(75%)
Q
White 100%
I
Black

Fig. 2-1-3 Colour bar pattern

2.1.4 Way to refer to adjustment procedure table

Check and adjustment procedure of the electrical circuit is explained in tables by item. Refer to the table as explained below.

No.	Item	Mode	Signal & Setting	Measurement Point	Adjustment Parts	Adjustment Procedure
①	②	③	④	⑤	⑥	⑦

① **No.** : Number of inspection or/and adjustment item. It is advised to proceed in this numerical order.
② **Item** : Name of check/adjustment particularily termed for servicing
③ **Mode** : Setting mode of the VTR for the check/adjustment
- EE : Electric-to-Electric mode (Stop state with power on)
- REC : Recording mode
- PB : Playback mode
- REC → PB (or another) : Perform recording first, then deal with the recorded portion in playback (or another) mode.

④ **Signal & Setting** : Input signal and something required for the check/adjustment
- AUX colour bar: Colour bar signal input in AUX IN mode
- AUX no signal: No input signal in AUX IN mode
- Tuner : Tuner receiving mode (RF input)
- Alignment tape color bar : Playback of alignment tape's color bar signal
- Alignment tape stairstep : Playback of alignment tape's stairstep signal
- Alignment tape 1 kHz : Playback of alignment tape's 1 kHz signal
- SP : Standard play mode
- LP : Long play mode
- Digital tracking ON : Digital tracking set to ON
- Digital tracking OFF : Digital tracking set to OFF (for manual tracking)

⑤ **Measurement Point** : Measuring point such as test point (TP) on P.C. board and pin of IC to connect measurement device for measurement/observation of waveform, voltage, frequency, etc.
⑥ **Adjustment Parts** : Symbol No. of variable components such as variable resistors, trimmer capacitors, etc. for adjustment
⑦ **Adjustment Procedure** : Preparation, order, manner, attentive matter, etc. to proceed check and adjustment

2.1.5 Confirmation

Before adjustment, use the MENU button function to set the CLOCK SET and TUNER SET.

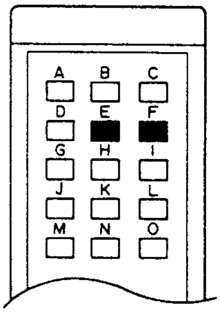
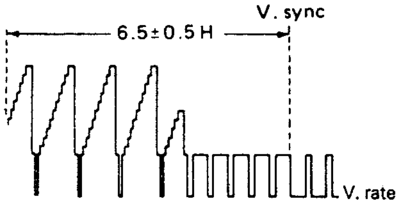
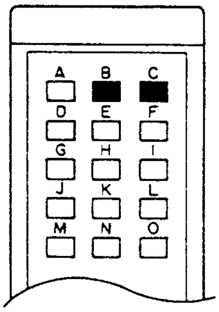
2.2 REGULATOR CIRCUIT

Note: ***Unless otherwise specified, all measurement points and adjustment parts are located on the 03 MAIN board.***

No.	Item	Mode	Signal & Setting	Measurement Point	Adjustment Parts	Adjustment Procedure
1	5 V DC output	• REC	• TUNER • SP	• TP801 (SWD 5V) • TP803 (GND)	• R811 (SWD 5V)	1) Connect a digital voltmeter between TP801 and TP803. 2) Adjust R811 for 5.30 ± 0.05 V DC.

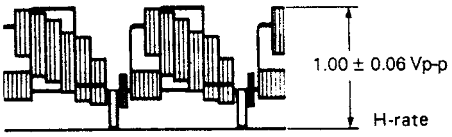
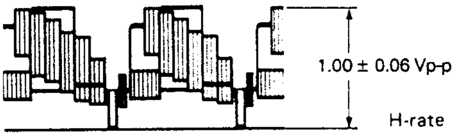
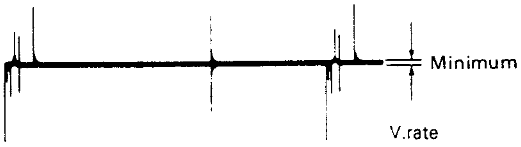
2.3 SERVO CIRCUIT

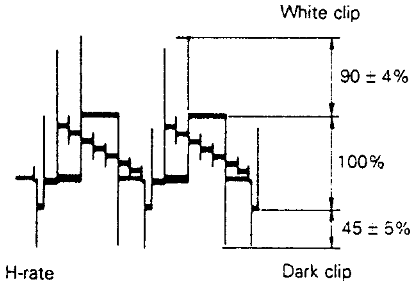
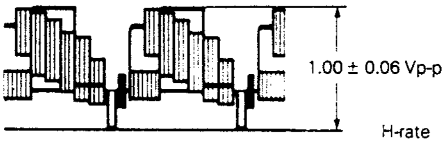
Note: ***Unless otherwise specified, all measurement points and adjustment parts are located on the 03 MAIN board.***

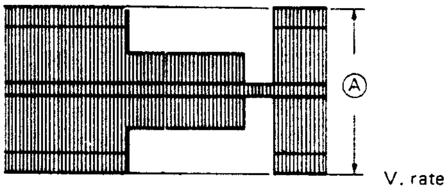
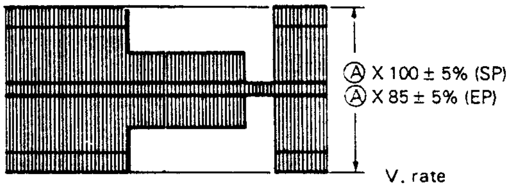
No.	Item	Mode	Signal & Setting	Measurement Point	Adjustment Parts	Adjustment Procedure
1	SP PB switching point	• PB	• Alignment tape stairstep (MH-2) • SP • Trigger slope (–) • Digital tracking: OFF	• TP210 (VIDEO OUT) • TP411 (DRUM FF) (Ext. trigger)  A B C D E F G H I J K L M N O **Fig. 2-3-1** Presetting unit  **Fig. 2-3-2** PB switching point	• Presetting unit (PTU-94008)	**Note:** ***Set VCR to the mode A by remoto controller.*** 1) Connect an oscilloscope to TP210. 2) Play back the stairstep signal of the alignment tape. 3) Set the tracking control of the front panel to the center position by simultraneously pressing the "∧"CH and "∨"CH channel buttons. 4) Adjust by pressing "E(–)" or "F(+)" buttons of presetting unit for position the trigger point 6.5 ± 0.5H from V. sync. **Note:** ***Use only buttons "E" and "F". Depressing other buttons during adjustments may cause adjustment errors.***
2	Slow tracking preset	• REC ↓ PB (slow)	• SP  A B C D E F G H I J K L M N O **Note:** ***Use only buttons "B" and "C". Depressing other buttons during adjustments may cause adjustment errors.*** **Fig. 2-3-3** Presetting unit	• TV monitor	• Presetting unit (PTU-94008)	**Note:** ***Set VCR to the mode A by remoto controller.*** 1) Receive a colour broadcast on a VHS-HI channel or supply a colour bar signal to VIDEO IN. 2) Record a colour broadcast or colour bar signal in the SP mode. 3) Play back recorded signal on the FWD slow mode and set the tracking control of the FRONT panel to the center position by simultaneously pressing the " ∧CH" and " ∨CH" channel (tracking) buttons. 4) Observe the display on a monitor-TV and adjust for optimum noise condition (best tracking) by depressing "B (–)" or "C (+)" buttons of presetting unit as required. 5) Depress the STOP button on the FRONT panel. 6) Confirm that the bar noise is not visible on the monitor in the slow mode. 7) Repeat steps 3) to 6) in REV slow mode.
		• REC ↓ PB (slow)	• LP			8) Record a colour broadcast or colour bar signal in the LP mode. 9) Repeat steps 3) to 7). **Note:** ***Slow motion will start automatically after pressing the pause button for more than 2 seconds.***

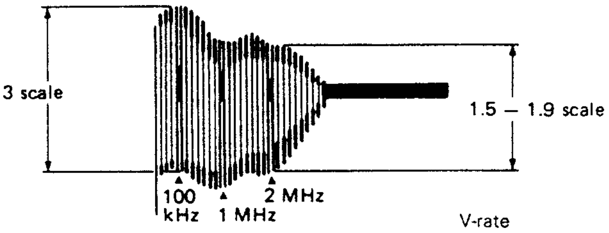
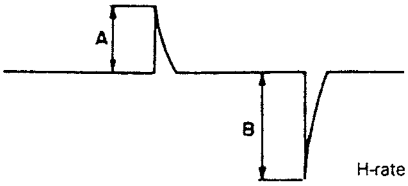
2.4 VIDEO CIRCUIT

Note:
- *Unless otherwise specified, all measurement points and adjustment parts are located on the 03 MAIN board.*
- *When items No. 1 through 5 need to adjust, replace respective adjustment parts with variable resistors corresponding to since there are trimming resistors used.*

No.	Item	Mode	Signal & Setting	Measurement Point	Adjustment Parts	Adjustment Procedure
1	EE Y level	• EE	• AUX colour bar	• TP210 (VIDEO OUT)	• R60 (EE Y LEVEL) 05 VIDEO UNIT	1) Connect an oscilloscope to TP210. 2) Confirm that Y level is 1.00 ± 0.06 Vp-p. 3) If necessary, replace R60 with the variable resistor NVP1301-103N and adjust it for 1.00 ± 0.06 Vp-p.
			 **Fig. 2-4-1** VIDEO OUT			
2	PB Y level	• REC ↓ PB	• AUX colour bar • SP	• TP210 (VIDEO OUT)	• R17 (PB Y LEVEL) 05 VIDEO UNIT	1) Connect an oscilloscope to TP210. 2) Record and play back a colour bar signal. 3) Confirm that Y level is 1.00 ± 0.06 Vp-p. 4) If necessary, replace R17 with the variable resistor NVP1301-222N and adjust it for 1.00 ± 0.06 Vp-p.
			 **Fig. 2-4-2** PB Y level			
3	Y NR level	• EE	• AUX colour bar	• IC1-9 05 VIDEO UNIT	• R56 (NC BALANCE) 05 VIDEO UNIT	1) Connect an oscilloscope to IC1 pin 9. 2) Confirm that DC step difference is minimum. 3) If necessary, replace R56 with the variable resistor NVP1301-152N and adjust for minimum DC step difference.
			 **Fig. 2-4-3** YNR NC balance			

No.	Item	Mode	Signal & Setting	Measurement Point	Adjustment Parts	Adjustment Procedure
4	White & Dark clip	• EE	• AUX colour bar	• IC1-22 05 VIDEO UNIT	• R64 (WHITE CLIP) 05 VIDEO UNIT	1) Connect an oscilloscope to IC1 pin 22. 2) Confirm that white clip is 90 ± 4 % and dark clip is 45 ± 5 %. 3) If necessary, replace R64 with the variable resistor NVP1301-332N and adjust it for 90 ± 4 % white clip and 45 ± 5 % dark clip.
			 White clip 90 ± 4% 100% 45 ± 5% H-rate Dark clip **Fig. 2-4-4** White & Dark clip			
5	Carrier & Deviation	• EE	• AUX no signal	• CN2-9 05 VIDEO UNIT	• R41 (CARRIER) 05 VIDEO UNIT	1) Connect a frequency counter to CN2 pin 9. 2) Confirm that frequency is 3.8 MHz ± 40 kHz. 3) If necessary, replace R41 with the variable resistor NVP1301-223N and adjust it for 3.8 MHz ± 40 kHz.
		• REC ↓ PB	• AUX colour bar	• TP210 (VIDEO OUT)	• R42 (DEVIATION) 05 VIDEO UNIT	4) Record and play back a colour bar signal. 5) Confirm that Y level is 1.00 ± 0.06 Vp-p. 6) If necessary, replace R42 with the variable resistor NVP1301-103N and adjust it for 1.00 ± 0.06 Vp-p. **Note:** ***Ordinarily avoid performing this adjustment. It should be performed only if IC1 of the VIDEO UNIT board has been replaced or if significant waveform distortion and S/N deterioration occur during recording and playback due to deficient adjustment of the carrier set and deviation.***
			 **Fig. 2-4-5** Carrier and deviation			

No.	Item	Mode	Signal & Setting	Measurement Point	Adjustment Parts	Adjustment Procedure
6	REC color level	• PB	• Alignment tape colour bar (MH-2) • Digital tracking: OFF	• IC1-41 0 5 VIDEO UNIT • TP210 (VIDEO OUT)	• R215 (SP REC COLOUR)	1) Playback the colour bar signal of the alignment tape. 2) Observe waveform at IC1-41 with external trigger from TP411. 3) Adjust by pressing the "∧" and "∨" tracking buttons on the front for maximum colour level. 4) Make a note of the higher channel level as "Ⓐ".
		 **Fig. 2-4-6** REC colour level-1				
		• REC ↓ PB	• SP			5) Record the colour bar signal in SP mode, and play it back to observe waveform at IC1-41. 6) Adjust R215 repeatedly in recording so that the higher channel level is " Ⓐ " x 100% in playback.
		 **Fig. 2-4-7** REC colour level-2				
		• PB • REC ↓ PB	•Alignment tape colour bar (MH-2L) • LP		• R222 (LP REC COLOUR)	7) Connect a jump wire between TP404 and GND. 8) Repeat steps 1) to 5) in LP mode. 9) Adjust R222 repeatedly in recording so that the higher channel level is " Ⓐ" x 85% in playback.

No.	Item	Mode	Signal & Setting	Measurement Point	Adjustment Parts	Adjustment Procedure
7	LP VIDEO EQ  **Fig. 2-4-8** PB frequency	• REC ↓ PB	• Video sweep • LP • Auto tracking: off	• TP210 (VIDEO OUT)	• R207 (LP VIDEO EQ)	1) Terminate VIDEO OUT with monitor-TV (75Ω load), supply a video sweep signal without burst to VIDEO IN. 2) Set recording video cassette into the cassette housing. Record a video sweep signal without burst in the LP mode. 3) Connect an oscilloscope to TP210. Play back recorded video sweep signal in the LP mode, set the tracking of the front panel to the auto tracking off position by simultaneously pressing the (∨) and (∧) tracking buttons. 4) Use the control of the oscilloscope to position the 100 kHz region at graduation 3 (0 dB) of the oscilloscope scale. 5) Adjust R207 to position the 2 MHz of channel-1 portion at 1.5 – 1.9 (-5 ± 1 dB) of the oscilloscope graduations as shown in Fig. 2-4-8.
			• TV broadcast • Auto tracking off	• TV monitor	• R207 (LP VIDEO EQ)	**Alternate method** 1) Set recording video cassette into the cassette housing, receive a colour broadcast. 2) Record a colour broadcast that shows a good depiction of human facial contours. 3) Play back recorded colour broadcast, set the tracking of the front panel to the auto tracking off position by simultaneously pressing the (∧) and (∧) tracking buttons. 4) Adjust R207 to obtain distinct facial features on the monitor.
8	ME SECAM DET  **Fig. 2-4-9** SECAM DET	• EE	• AUX SECAM colour bar	• TP244 (MESECAM DET)	• L282 (MESECAM DET)	1) Connect an oscilloscope to TP244. 2) Adjust L282 so that A and B are related as follows: A : B = 3 : 4

2.5 TIMER CIRCUIT

No.	Item	Mode	Signal & Setting	Measurement Point	Adjustment Parts	Adjustment Procedure
1	Clock	• EE		• IC1-16 $\boxed{2}\boxed{0}$ TIMER	• C6 (CLOCK) $\boxed{2}\boxed{0}$ TIMER	Note: ***For below adjustments use 10:1 probe with input capacitance lessthan 100 pf.*** 1) Disconnect VCR from AC. Connect a frequency counter between IC1-16 and GND. 2) Short IC1-8 to GND, then short the leads of capacitor C3 once in order to reset IC1. 3) Connect VCR to AC. All FDP Segments are on. 4) Adjust C6 for 2048.000 ± 0.002 Hz (488.2808 to 488.2818 μs).

2.6 AUDIO CIRCUIT

Notes: • *Unless otherwise specified, all measurement points and adjustment points are located on the 0 9 AUDIO UNIT board.*

• *When items No. 3 and 4 need to adjust, replace respective adjustment parts with variable resistors corresponding to since there are trimming resistors used.*

No.	Item	Mode	Signal & Setting	Measurement Point	Adjustment Parts	Adjustment Procedure
1	Audio bias level	• REC	• AUX No signal • SP	• TP31(+) • TP32(–) 0 3 MAIN	• R16 (BIAS) 0 3 MAIN	1) Connect a millivoltmenter between TP31 (INPUT) and TP32 (GND). 2) Set for REC mode without incoming signal. 3) Adjust R16 for 2.6 mVrms.
2	EE level	• EE	• AUX 1 kHz • Audio monitor: HI-FI • HI-FI REC BALANCE: Center • HI-FI REC LEVEL: Center	• AUDIO OUT	• R13 (VOLUME) • R15 (BALANCE) 0 3 MAIN	1) Supply a sine wave of 1 kHz, –8 dBs (0.9 Vp-p, 0.32 Vrms) to the Peri. In terminal. 2) Adjust R13 and R15 so that output level of both channels L and R are the same.
3	Carrier	• EE		• IC1-22 (L CH) • IC1-39 (R CH)	• R11 (L CARRIER) • R25 (R CARRIER)	1) Connect a frequency counter to pin 22 of IC1, and confirm that the frequency is 1.4 MHz ± 5 kHz. 2) If necessary, replace R11 with the variable resistor NVP1301-103N, and adjust them for 1.4 MHz ± 5 kHz. 3) Connect a frequency counter to pin 39 of IC1, and confirm that the frequency is 1.8 MHz ± 5 kHz. 4) If necessary, replace R25 with the variable resistor NVP1301-332N, and adjust it for 1.8 MHz ± 5 kHz.
4	PB level	• PB	• MH-F2 1 kHz • Auto tracking: off • Audio monitor: HI-FI	• AUDIO OUT	• R5 (R PB LEVEL) • R30 (L PB LEVEL)	1) Connect an audio tester to audio out (left channel). Play back the 1 kHz segment of the alignment tape. 2) Confirm that output level is –6 dBs (1.1 Vp-p) ± 2 dBs. 3) If necessary, replace R5 and R30 with with the variable resistor NVP1301-153N respectively, and adjust them for –6 dBs.

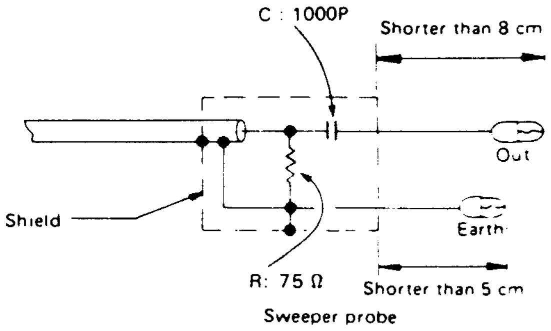
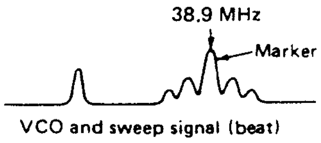
2.7 ON SCREEN CIRCUIT

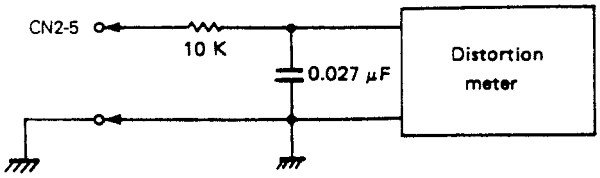
Note: *Unless otherwise specified, all measurement points and adjustment parts are located on the* [1] [7] *ON SCREEN board.*

No.	Item	Mode	Signal & Setting	Measurement Point	Adjustment Parts	Adjustment Procedure
1	Dot clock	• EE	• TUNER	• TP901	• C905 (DOT CLOCK)	1) Connect a frequency counter to TP901. 2) Short IC901-3 to GND and short IC901-30 to IC901-32 (SWD 5V). 3) Adjust C905 for 7.30 ± 0.05 MHz. **Note:** *If incorrectly the above adjustments, slip out the on screen display.* *For adjustment of above steps (2) to (4), looking for Menu on the monitor-TV and rough adjustment C905 preparation.*
2	Burst clock	• EE	• TUNER	• TP902	• C916 (BURST CLOCK)	1) Connect a frequency counter to TP902. 2) Adjust C916 for 17.73447 ± 0.00030 MHz. **Note:** *If incorrectly the above adjustment, blue back picture is not appear on the monitor-TV.* *For adjustment of above steps (1) to (2), looking for Menu on the monitor-TV and rough adjustment C916 preparation.*

2.8 TUNER/IF CIRCUIT

Note: *Unless otherwise specified, all measurement points and adjustment parts are located on* [0] [8] *TUNER/IF board.*

No.	Item	Mode	Signal & Setting	Measurement Point	Adjustment Parts	Adjustment Procedure
Equipment required: 1. Oscilloscope 2. IF sweep signal generator with suitable markers (PIF, etc.) 3. Sweeper probe (sweep signal supply cable) as shown below.						 C : 1000P Shorter than 8 cm Out Shield Earth R: 75 Ω Shorter than 5 cm Sweeper probe **Fig. 2-8-1**
1	VCO	• EE	• TUNER  VCO and sweep signal (beat) **Fig. 2-8-2**	• IC1-17	• T1 (VCO)	1) Use a sweeper probe as shown in Fig. 2-8-1 and connect the sweep generator output to pin 1 of SAW 1. 2) Adjust the sweep gain so that the waveform does not distort as observed with the oscilloscope. 3) Connect the oscilloscope to pin 17 of IC1 (VIDEO DET OUT) and adjust T1 to align the waveform with the frequency marker as shown in Fig. 2-8-2.
			• TUNER • TV broadcast	• TV monitor	• T1	**Alternate method:** 1) Receive a colour broadcast. 2) Adjust T1 to obtain a fine picture on the monitor.

No.	Item	Mode	Signal & Setting	Measurement Point	Adjustment Parts	Adjustment Procedure
	● Before the following adjustment: 1. Connect a cable to ANT IN and terminate TV OUT at 75 Ω. 2. Set a TV channel signal generator as follows. Video : 65 dBμ/75Ω, color bar 87.5% modulation Audio : 55 dBμ/75Ω. 1 kHz ± 50 kHz deviation					
2	RF AGC	• EE	• Tuner • TV broadcast	• Front end	• R72 (RF AGC)	1) Connect the oscilloscope to IF terminal of U/V Tuner (Front end). Adjust R72 for maximum level, then again adjust R72 for –8 dB again.
				• TV monitor		**Alternate method:** **Note:** *Adjust R6 (RF AGC) to correct for excess noise in the picture or when streaky cross interference occurs due to strong electrical fields.* 1) Adjust R72 to minimize noise or streaks on the TV screen. 2) Check for absence of abnormality on all channels.
3	FM DETECT	• EE	• Tuner • TV broadcast	• CN2-5	• T3 (FM DETECT)	1) Use a adjustment circuit as shown in Fig. 2-8-3 and with AFC mode to NORM, connect a distortion meter as shown in Fig. 2-8-3. 2) Adjust T3 for minimum distortion (less than 1.5%).
	 **Fig. 2-8-3** Adjustment circuit					
				• Across C4		**Alternate method:** 1) Receive a colour broadcast on a VHS-HI channel (7 to 13). Connect an oscilloscope to across C4 of the MAIN board. 2) Adjust T3 for maximum level at audio sound.
4	Sound trap	• EE	• TUNER • TV broadcast	• TV monitor	• T4 (SOUND TRAP)	**Alignmate method:** 1) Receive a colour broadcast on a VHF channel. 2) Adjust T4 for maximum level at audio sound.

2.9 DEMODULATOR CIRCUIT

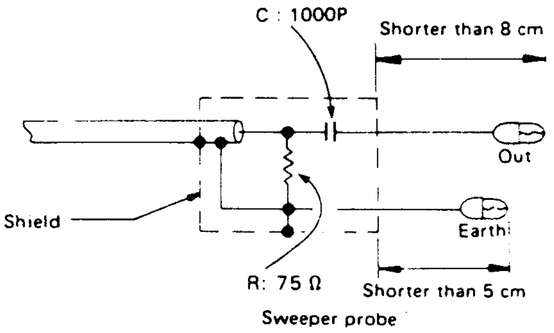
Note: *Unless otherwise specified, all measurement points and adjustment parts are located on* 1 4 *DEMODULATOR board.*

Audio Multiplex TV Signal Generator

Recommanded Specifications

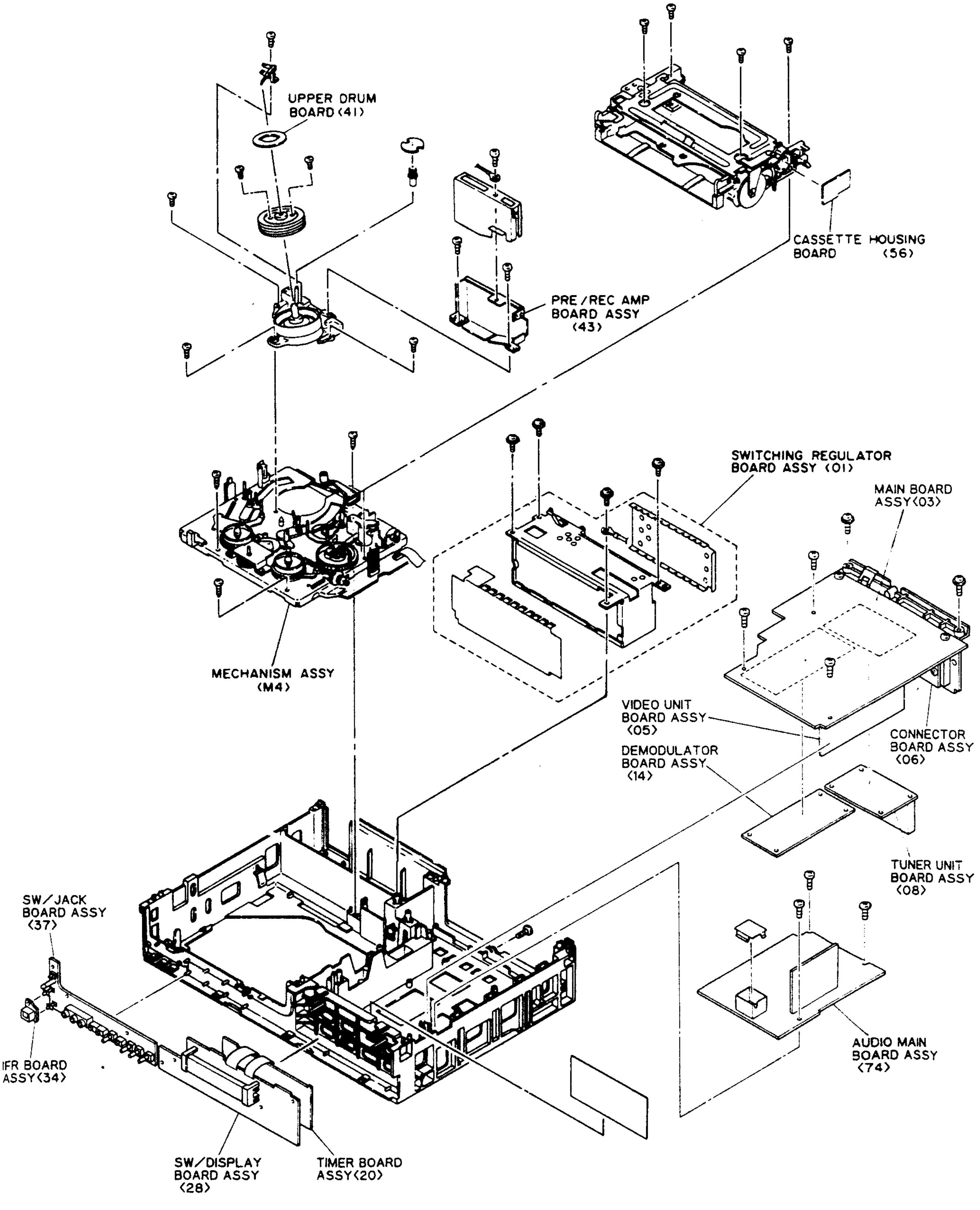
1. Signal Format	Based on CCIR-B
2. Frequency	
Video Carrier FV	38.9 MHz
1st Sound Carrier f_{s1}	33.4 MHz
2nd Sound Carrier f_{s2}	33.1578125 MHz
3. Modulator	
Video	Crosshatch (black on white) V: 50 Hz, H: 15.625 kHz
Audio	Sinewave 1 kHz; CH1 and CH-2 outputs switchable
4. Output	97 dB/μV (open)±2 dB fixed, BNC-R 75 Ω
5. P-S Ratio	S_1 P−13 dB±2 fixed S_2 P−20 dB±2 fixed
6. Modulation	
Video	87.5%±3%
Audio	±30 kHz±2 kHz
7. Stereo Separation	Less than −40 dB
8. Pilot Signal	
Carrier Frequency	54.6875 kHz±5 Hz synchronized type
Stereo	117.5 Hz AM 50%
Dual	274.1 Hz AM 50%

9. Sound Modulation Modes	S_1	S_2
Mono	Mono 1	Mono 2
Stereo	(L+R)/2	R
Dual	Mono 1	Mono 2
10. Functions	S_1	S_2
Mono (M)	100%	100%
Stereo (L, R)	(L+R)/2	R
(L)	L/2	–
(R)	R/2	R
(OFF)	–	–
Mult (S_1, S_2)	100%	100%
(S_1)	100%	0
(S_2)	0	100%
(OFF)	0	0
V. MOD (ON/OFF)		
11. Frequency Accuracy	Within $\pm 5 \times 10^{-5}$	
12. Spurious	Less than −50 dB	
13. Saw Filter	Self-contained	

No.	Item	Mode	Signal & Setting	Measurement Point	Adjustment Parts	Adjustment Procedure
● **Equipment required:** 1. Oscilloscope 2. Audio Multiplex TV Signal Generator 3. Sweeper probe (sweep signal supply cable) as showm below.  C : 1000P Shorter than 8 cm Out Shield Earth R: 75 Ω Shorter than 5 cm Sweeper probe **Fig. 2-9-1**						
1	Stereo separation	• EE	• STEREO • R : mod • L : unmod	• CN204 pin 2	• R264 (STEREO SEPA)	1) Use a sweeper probe as shown in Fig. 2-8-1. 2) Set a signal generator to Stereo mode, but adjust only the R channel. 3) Connect an oscilloscope to CN204 pin 2. 4) Adjust R264 for minimum output level.

SECTION 3
CHARTS AND DIAGRAMS

3.1 CIRCUIT BOARD LOCATION

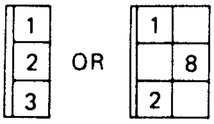


UPPER DRUM BOARD ‹41›
CASSETTE HOUSING BOARD ‹56›
PRE/REC AMP BOARD ASSY ‹43›
SWITCHING REGULATOR BOARD ASSY ‹01›
MAIN BOARD ASSY‹03›
MECHANISM ASSY ‹M4›
VIDEO UNIT BOARD ASSY ‹05›
DEMODULATOR BOARD ASSY ‹14›
CONNECTOR BOARD ASSY ‹06›
TUNER UNIT BOARD ASSY ‹08›
SW/JACK BOARD ASSY ‹37›
IFR BOARD ASSY‹34›
AUDIO MAIN BOARD ASSY ‹74›
SW/DISPLAY BOARD ASSY ‹28›
TIMER BOARD ASSY‹20›

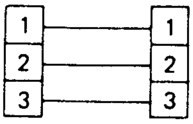
3.2 GENERAL INFORMATION

3.2.1 Connections

Note:
Unless otherwise specified, only signal input flow is indicated.
Connection arrows indicate only signal outputs.



: Connectors



: Board in connectors

① ② ③ OR ○ ○ ○ : Direct connections

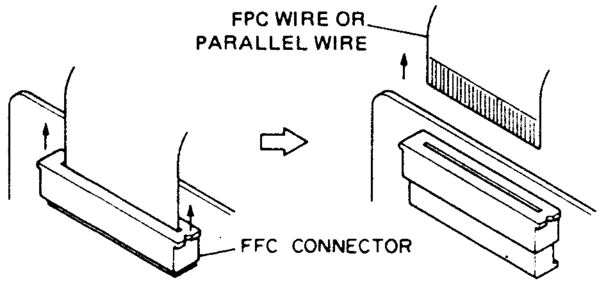
VS
MS
SM
: Connected pattern in the board.

Abbreviations
V : Video M : Mechacon
S : Servo A : Audio
R : Regulator T : Terminal
O : Audio switch

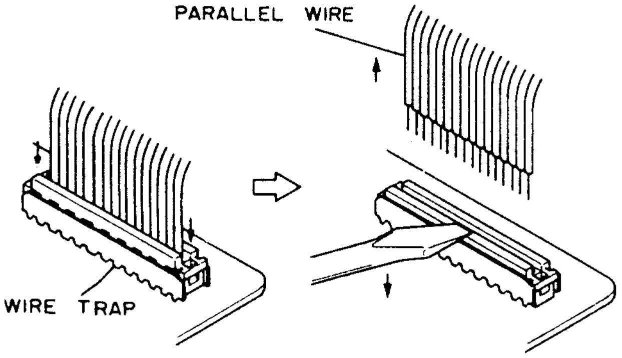
VS : Signal flow from video to servo.

3.2.2 Disconnecting the flatwire

1. Pull the connector structure upward to release the clamp when removing or inserting the flat wire cable.

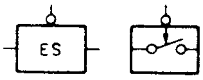


2. Depress the connector structure downward to release the clamp when removing or inserting the flat wire cable, as indicated below.

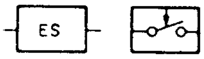


3.2.3 Indications

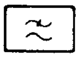
AUX : Active only at high.
$\overline{\mathrm{AUX}}$: Active only at low.
$\bar{\mathrm{A}}\bar{\mathrm{U}}\bar{\mathrm{X}}$: Active only at middle.
$\bar{\mathrm{A}}\mathrm{U}\bar{\mathrm{X}}$: Active only at open.

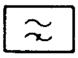


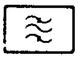
: Active only at low for electronic switch.

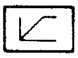


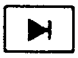
: Active only at high for electronic switch.

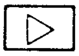

: Low pass filter.

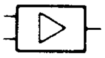

: High pass filter.


: Band pass filter.


: Limiter.


: Detector.


: Amplifier.


: Mixer stage.

3.2.4 Schematic diagram values

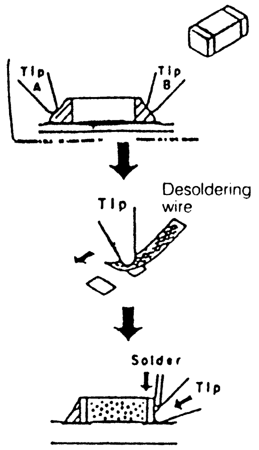
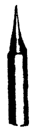
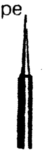
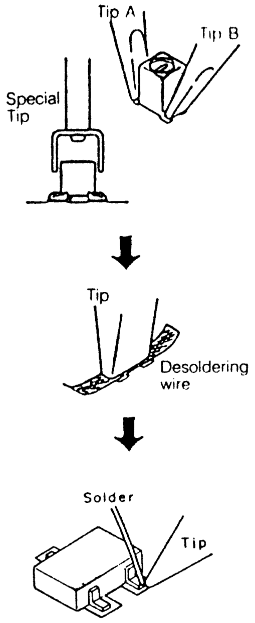
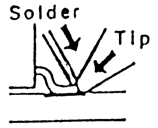
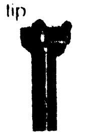
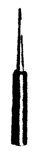
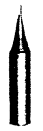
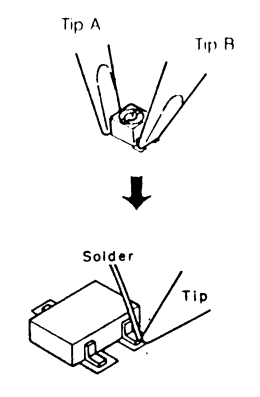
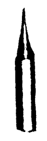
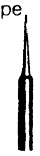
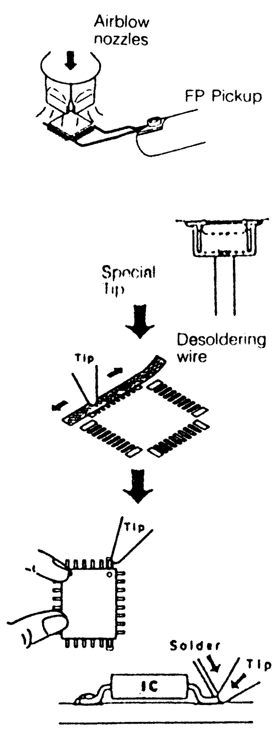
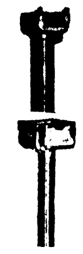
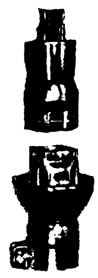
Unless otherwise specified.

1. All resistance values are in ohms, 1/6 W, 1/8 W, (refer to parts list).
2. All capacitance values are in μF, (P; PF).
3. All inductance values are in μH, (m; mH).
4. All diodes are 1SS133 or MA165, (refer to parts list).
5. Voltages are DC-measured (reference to ground) with a digital voltmeter during recording (SP mode) and playback (SP mode) with alignment tape. Where voltages differ between recording and playback, the voltage during playback is shown in parentheses.
6. Waveforms (VIDEO System) are measured (reference to ground) with a color bar during recording (SP mode) and playback (SP mode) with alignment tape.
7. Waveforms (AUDIO System) are measured (reference to ground) with 1 kHz (−8 dBs) during recording and playback with alignment tape (1 kHz).
8. Shaded (▨) parts are critical for safety. Replace only with specified parts numbers.

3.2.5 Signal flow in the schematic

➡ Recording signal path
⇨ Playback signal path
⇨ REC/PB signal path

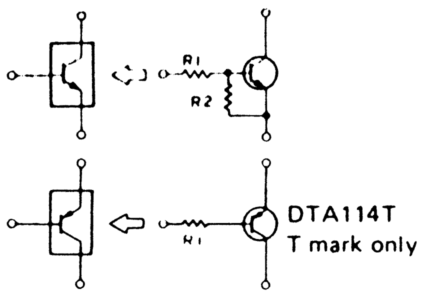
3.2.6 Basic knowledge of SMC* parts replacement

Products	Appearance	Replacement technology	Removal method	Installation method	Soldering tip types	Cautions
Thick Film Chip Resistors			**• Use 2 soldering irons** 1. Use thin tip soldering irons. 2. Use soldering tip temperature of about 280°C. 3. Simultaneously heat both ends of the part. 4. While heating, grasp the part with the tips of the soldering irons and remove it. 5. Use desoldering wire to completely remove the old solder from the part location of the board. 6. A clean pattern for installing the new part is very important.	1. Clean the area where the new part is to be moundted (use alcohol). 2. Apply flux. 3. Set part correctly into position, prevent it from shifting. 4. Bring the soldering iron tip close to the part contact without actually touching it. Melt thin (0.3 mm) solder between the tip and part so that it flows into the part contact. 5. Check work quality with a magnifier.	Thin tip type  Small flat-blade tip type 	Some parts can be damaged by sudden heating. Preheat the part at about 100°C for several minutes before installing it. Do not touch the part body with the soldering iron. The thin (0.3 mm) solder for miniature parts does not contain adequate flux. Supplementary flux is thus needed in most cases. Set the position carefully and secure the part. A defective trimming resistor cannot be adjusted externally. Replace with an ordinary variable resistor.
Carbon Film Chip Resitors						
Metal Film Chip Resistors						
Chip Ceramic Capacitors						
Chip Triming Resistors						
Chip Inductors		 Tip A Tip B Special Tip Tip Desoldering wire Solder Tip	**• Special desoldering iron** 1. Select soldering tip according to part size. 2. Bring the tip into contact with the soldered points. 3. When the solder melts, remove the part. 4. Remove the old solder with desoldering wire. **• 2 soldering irons** 1. Use small flat-blade tips. 2. Heat both ends of the part simultaneously. 3. When the solder melts, grasp and remove the part with the soldering iron tips. 4. Remove the old solder with desoldering wire.	1. Clean the area where the new part is to be mounted (use alcohol). 2. Apply flux. 3. Set part correctly into position, prevent it from shifting. 4. Use sharp soldering iron tip. Bring close to the part contact without actually touching it. Melt thin solder between the tip and part so that it flows into the part contact.  5. Check work quality with a magnifier.	Special Soldering tip  Small flat-blade tip type  Thin tip type 	Use care not to damage plastic components when soldering. Position the part carefully. This will also affect the soldering operation. Use care regarding soldering iron tip and avoid rapidly heating parts. For larger parts, use a slightly higher temperature (about 300°C). Check after installing (cold solder joints, etc.). Use care not to damage the circuit pattern, especially when removing.
Chip Resistor Networks						
Chip Tantalum Capacitors						
Chip Tantalum Electrolytic Capacitors						
Chip Aluminum Electrolytic Capacitors						
Chip Transformers						
Chip Filters						
Chip VRs			**• 2 soldering irons** 1. Use small flat-blade tips. 2. Heat the leads of the part simultaneously. 3. When the solder melts, grasp and remove the part with the soldering iron tips. 4. Remove the old solder with desoldering wire.	1. Clean the area where the new part is to be moundted (use alcohol). 2. Apply flux. 3. Set part correctly into position, prevent it from shifting. 4. Use sharp soldering iron tip. Bring close to the part contact without actually touching it. Melt thin solder between the tip and part so that it flows into the part contact.	Thin tip type  Small flat-blade tip type 	Use care not to damage the part when soldering. Check for solder joints, expecially miniature parts with small leads.
Chip Trimmer Capacitors						
Diodes						
Transistors						
IC (SOP) (Small Outline Package)		 Airblow nozzles FP Pickup Special tip Desoldering wire Tip Tip Solder Tip IC	**• Special desoldering iron** 1. Select the tip according to the size and shape of the IC. 2. "Tin" the tip with a small amount of solder. 3. Set the tip squarely over the IC leads. 4. When the solder melts, carefully twist the iron. 5. Raise and remove the IC. **• Shaped airblower unit** 1. Select the correct nozzle. 2. Select the temperature and airblow (suggested: temp. 7, airblow 4). 3. Engage the IC removing tool. 4. Use the airblow to preheat the IC for about 5 seconds, then heat with the nozzle until the IC remover lifts the part from the board.	1. Use desoldering wire to remove the previous solder. 2. Clean the location with alcohol. 3. Apply flux. 4. Position the IC and solder two pins at opposite sides. 5. Use a sharp tipped soldering iron and carefully solder each pin. (After gaining experience, a thicker tip can be used for better work efficiency.) 6. Remove any solder bridges with desoldering wire. 7. Inspect the work with a magnifier.	Special soldering tips.  Airblow nozzles 	Do not reuse removed parts. Use care to avoid solder bridges. Remove any that occurs. Remove the old IC carefully so as not to damage the circuit pattern. Because of the many pins, cleanliness of the pattern is extremely important after removing the IC. Be very precise in positioning the IC. Soldering opposite pins first holds the IC in place and makes soldering the other pins easier. It is important to inspect the work with a magnifier. ICs (especially TSOP) are easily damaged by heat. Do not touch directly with the soldering iron.
IC (SSOP) (Shrink Small Outline Package)						
IC (VSOP) (Very Small Outline Package)						
IC (QFP) (Quad Flat Package)						
IC (VQFP) (Very Small Quad Flat Package)						
IC (PLCC) (Plastic Leaded Chip Carrier)						
IC (TSOP) (Thin Small Outline Package)						

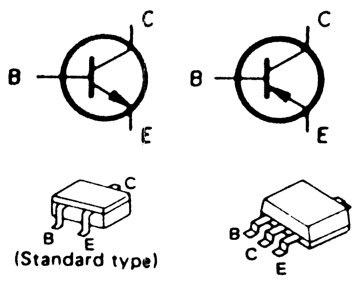
*SMC: Surface Mounted Component

3.2.7 Semiconductors

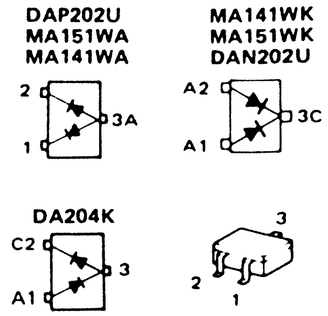
1. Digital transistor



2. Chip transistor



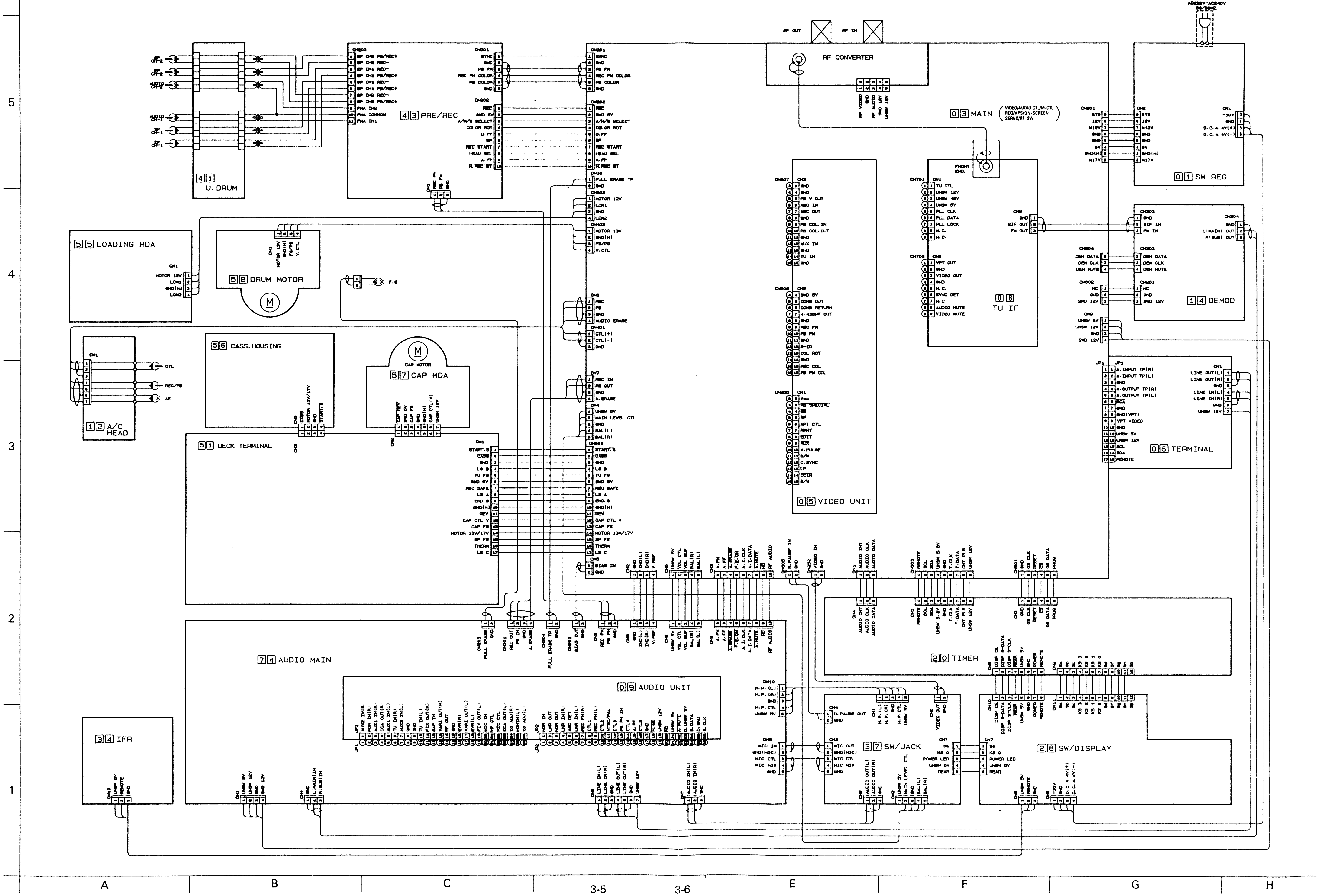
3. Chip diode



Note: The digital transistor includes built in resistors. If features small size and high reliability. Both PNP and NPN types are available.

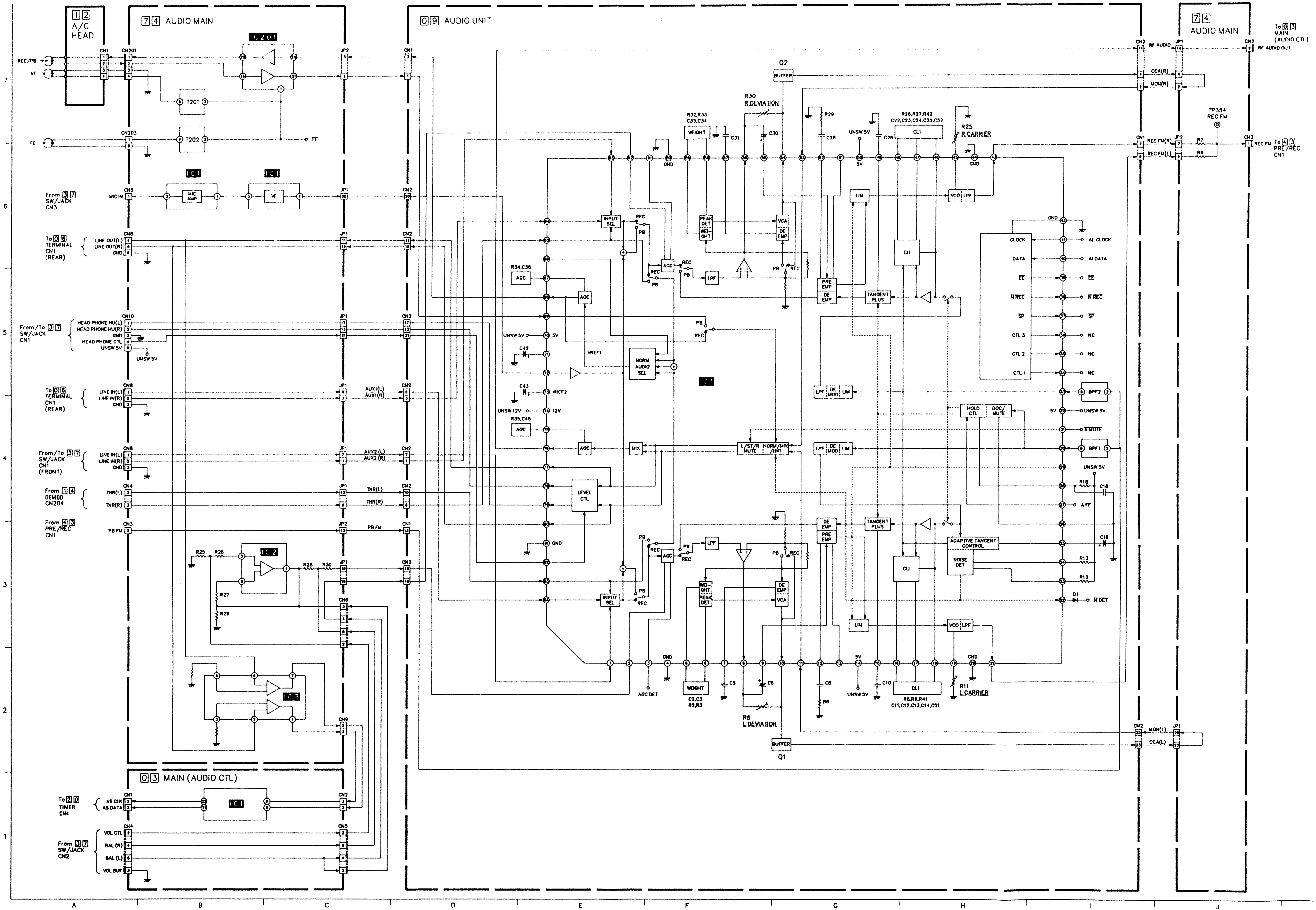
Uses: Inverter, interface, driver circuits.

3.3 OVERALL WIRING



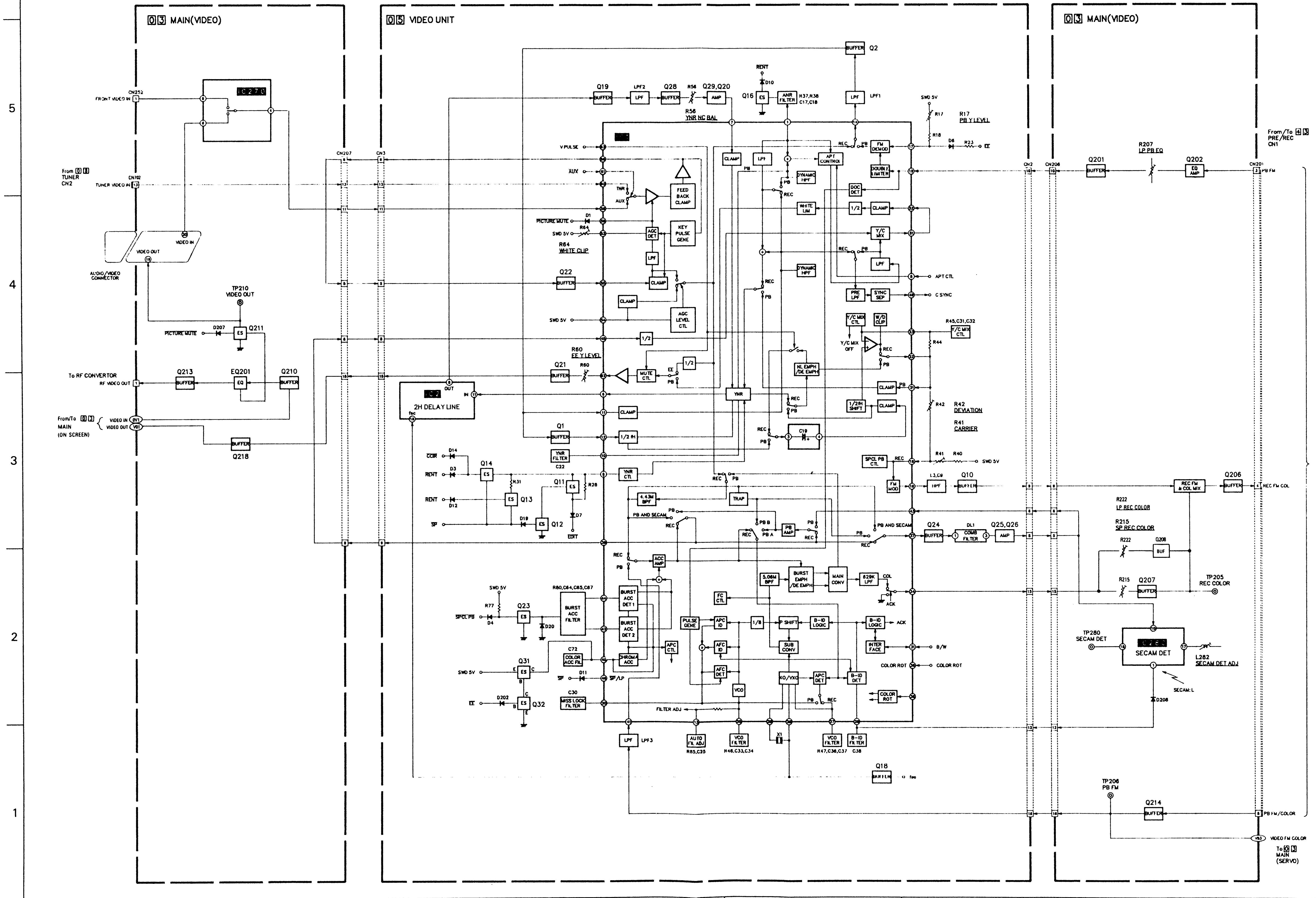
41 U. DRUM
43 PRE/REC
03 MAIN (VIDEO/AUDIO CTL/M-CTL REG/VPS/ON SCREEN SERVO/RF SW)
RF CONVERTER
RF OUT
RF IN
AC220V-AC240V 50/60HZ
01 SW REG
55 LOADING MDA
58 DRUM MOTOR
M
F.E
12 A/C HEAD
CTL
REC/PB
AE
56 CASS. HOUSING
57 CAP MDA
CAP MOTOR
51 DECK TERMINAL
05 VIDEO UNIT
08 TU IF
FRONT END.
14 DEMOD
06 TERMINAL
20 TIMER
74 AUDIO MAIN
09 AUDIO UNIT
34 IFR
37 SW/JACK
28 SW/DISPLAY
1
2
3
4
5
6
A
B
C
D
E
F
G
H

3.4 AUDIO BLOCK DIAGRAM

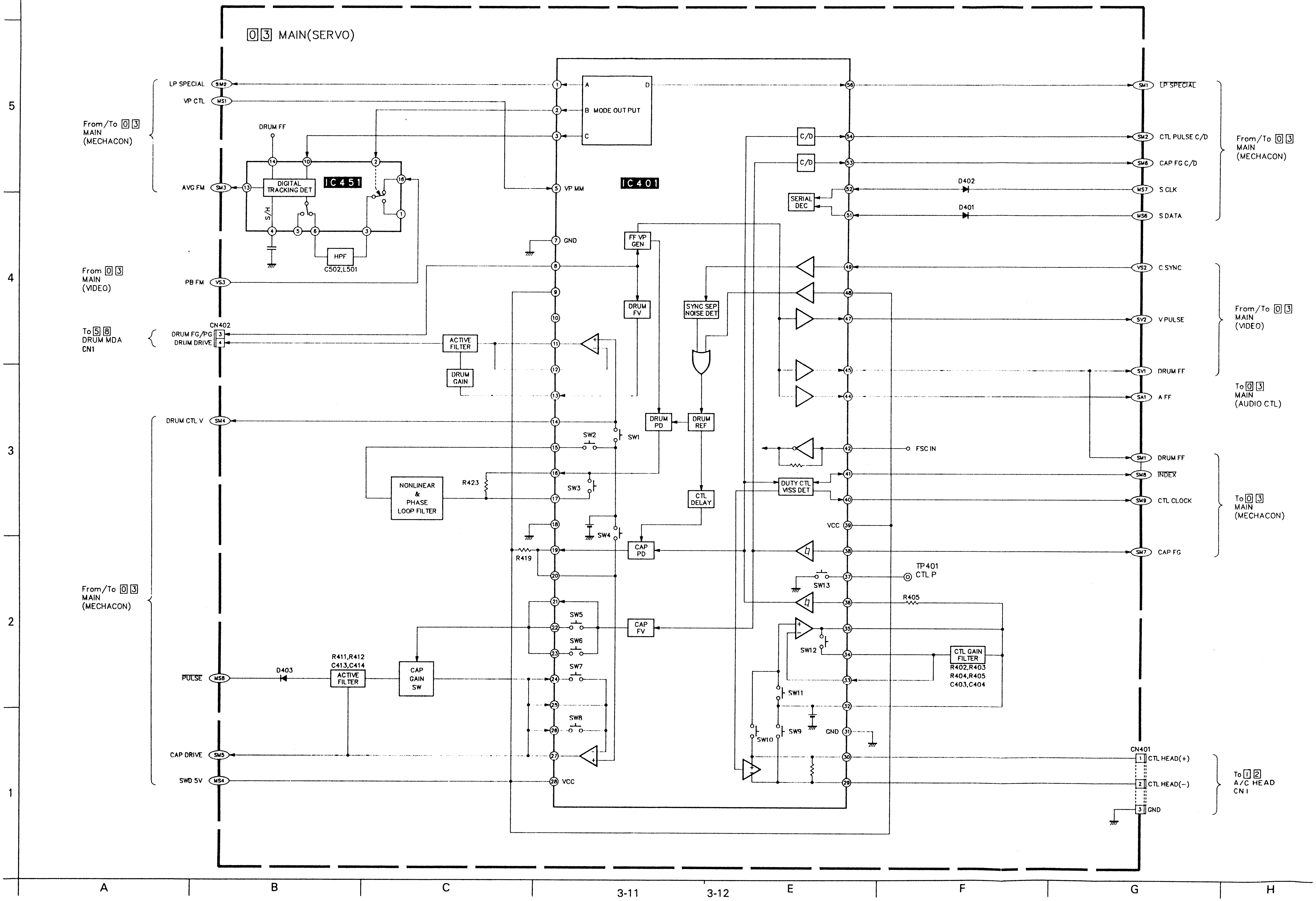


12 A/C HEAD
74 AUDIO MAIN
09 AUDIO UNIT
74 AUDIO MAIN
03 MAIN (AUDIO CTL)
REC/PB
AE
FE
CN1
CN201
CN203
IC201
T201
T202
FT
IC1
MIC AMP
VF
From 37 SW/JACK CN3
MIC IN
CN5
To 06 TERMINAL CN1 (REAR)
LINE OUT(L)
LINE OUT(R)
GND
CN8
From/To 37 SW/JACK CN1
HEAD PHONE HU(L)
HEAD PHONE HU(R)
HEAD PHONE CTL
UNSW 5V
CN10
To 06 TERMINAL CN1 (REAR)
LINE IN(L)
LINE IN(R)
AUX1(L)
AUX1(R)
From/To 37 SW/JACK CN1 (FRONT)
AUX2(L)
AUX2(R)
From 14 DEMOD CN204
TNR(L)
TNR(R)
CN4
From 43 PRE/REC CN1
PB FM
CN3
JP1
JP2
CN2
IC2
IC3
R25
R26
R27
R28
R29
R30
CN6
CN9
To 20 TIMER CN4
AS CLK
AS DATA
From 37 SW/JACK CN2
VOL CTL
BAL (R)
BAL (L)
VOL BUF
CN5
Q2
BUFFER
R30 R.DEVIATION
R32,R33 C33,C34
WEIGHT
C31
C30
R29
C28
UNSW 5V
C26
R26,R27,R42 C22,C23,C24,C25,C52
CL1
R25 R.CARRIER
GND
5V
INPUT SEL
REC
PB
AGC
PEAK DET
WEI-GHT
VCA
DE EMP
LPF
LIM
VCO
CLI
PRE EMP
TANGENT PLUS
R34,C36
UNSW 5V
C42
VREF1
NORM AUDIO SEL
C43
VREF2
UNSW 12V
12V
R35,C45
MIX
L/ST/R MUTE
NORM/MIX /HIFI
LEVEL CTL
DE MOD
HOLD CTL
DOC/ MUTE
ADAPTIVE TANGENT CONTROL
NOISE DET
CLOCK
DATA
EE
N REC
SP
CTL 3
CTL 2
CTL 1
AL CLOCK
AI DATA
NC
BPF2
BPF1
A MUTE
R18
C18
A FF
C19
R13
R12
D1
N DET
AGC DET
C2,C3 R2,R3
C5
C6
R5 L.DEVIATION
C8
R6
C10
R8,R9,R41 C11,C12,C13,C14,C51
R11 L.CARRIER
BUFFER
Q1
RF AUDIO
CCA(R)
MON(R)
REC FM(R)
REC FM(L)
R7
R6
TP354 REC FM
RF AUDIO OUT
To 03 MAIN (AUDIO CTL)
To 43 PRE/REC CN1
REC FM
MON(L)
CCA(L)
A
B
C
D
E
F
G
H
I
J
1
2
3
4
5
6
7

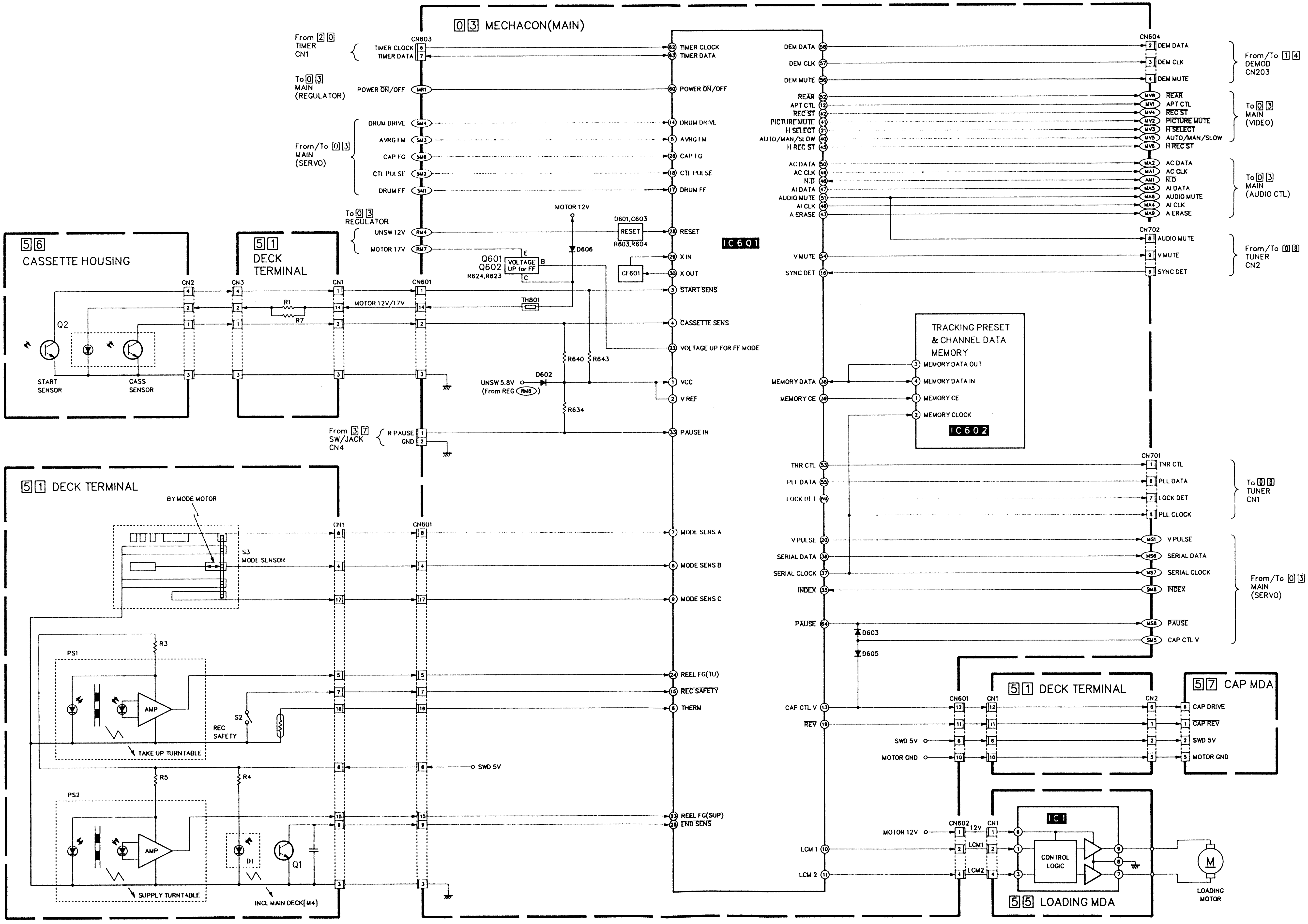
3.5 VIDEO BLOCK DIAGRAM


03 MAIN(VIDEO)
05 VIDEO UNIT
03 MAIN(VIDEO)
IC270
CN252
FRONT VIDEO IN
From 08 TUNER CN2
CN702
TUNER VIDEO IN
VIDEO IN
VIDEO OUT
AUDIO/VIDEO CONNECTOR
TP210 VIDEO OUT
PICTURE MUTE
D207
Q211
ES
To RF CONVERTOR
RF VIDEO OUT
Q213
BUFFER
EQ201
EQ
Q210
From/To 03 MAIN (ON SCREEN)
VIDEO IN
VIDEO OUT
Q218
CN207
CN3
IC2
2H DELAY LINE
OUT
IN
fsc
Q19
LPF2
LPF
Q28
R56
Q29,Q20
AMP
R56 YNR NC BAL
RENT
D10
Q16
ANR FILTER
R37,R38 C17,C18
Q2
LPF1
V PULSE
AUX
TNR
FEED BACK CLAMP
KEY PULSE GENE
AGC DET
D1
R64
SWD 5V
R64 WHITE CLIP
Q22
CLAMP
AGC LEVEL CTL
R60 EE Y LEVEL
Q21
R60
MUTE CTL
EE
PB
REC
1/2
Q1
1/2 fH
YNR FILTER
C22
YNR CTL
YNR
CCIR
D14
D3
Q14
R31
Q11
R28
Q13
D12
SP
D19
Q12
D7
EDIT
4.43M BPF
TRAP
PB AND SECAM
PB B
PB A
PB AMP
ACC AMP
R80,C64,C65,C67
BURST ACC FILTER
BURST ACC DET 1
BURST ACC DET 2
SPCL PB
R77
D4
Q23
D20
Q31
Q32
D202
C72
COLOR ACC FIL
CHROMA ACC
D11
SP/LP
C30
MISS LOCK FILTER
APC CTL
PULSE GENE
APC ID
AFC ID
AFC DET
VCO
1/8
P SHIFT
SUB CONV
XO/VXO
APC DET
B-ID LOGIC
B-ID DET
INTER FACE
COLOR ROT
FC CTL
5.06M BPF
BURST EMPH /DE EMPH
MAIN CONV
629K LPF
COL
ACK
B/W
FILTER ADJ
LPF3
AUTO FIL ADJ
R85,C25
VCO FILTER
R48,C33,C34
X1
R47,C36,C37
B-ID FILTER
C38
Q18
fsc
DYNAMIC HPF
WHITE LIM
APT CONTROL
FM DEMOD
DOUBLE LIMITER
DOC DET
Y/C MIX
PRE LPF
SYNC SEP
APT CTL
C SYNC
Y/C MIX CTL
W/D CLIP
Y/C MIX OFF
NL EMPH /DE EMPH
1/2fH SHIFT
C19
R17
R18
R17 PB Y LEVEL
D6
R23
R45,C31,C32
R44
R42
R42 DEVIATION
R41 CARRIER
R41
R40
SPCL PB CTL
FM MOD
L3,C9
HPF
Q10
Q24
DL1
COMB FILTER
Q25,Q26
CN2
CN206
Q201
R207 LP PB EQ
Q202
EQ AMP
CN201
PB FM
From/To 43 PRE/REC CN1
REC FM & COL MIX
Q206
REC FM COL
R222 LP REC COLOR
R215 SP REC COLOR
R222
Q208
BUF
R215
Q207
TP205 REC COLOR
TP280 SECAM DET
IC280
SECAM DET
L282 SECAM DET ADJ
SECAM: L
D208
TP206 PB FM
Q214
PB FM/COLOR
VIDEO FM COLOR
To 03 MAIN (SERVO)
6
5
4
3
2
1
A
B
C
E
F
G
H

3.6 SERVO BLOCK DIAGRAM

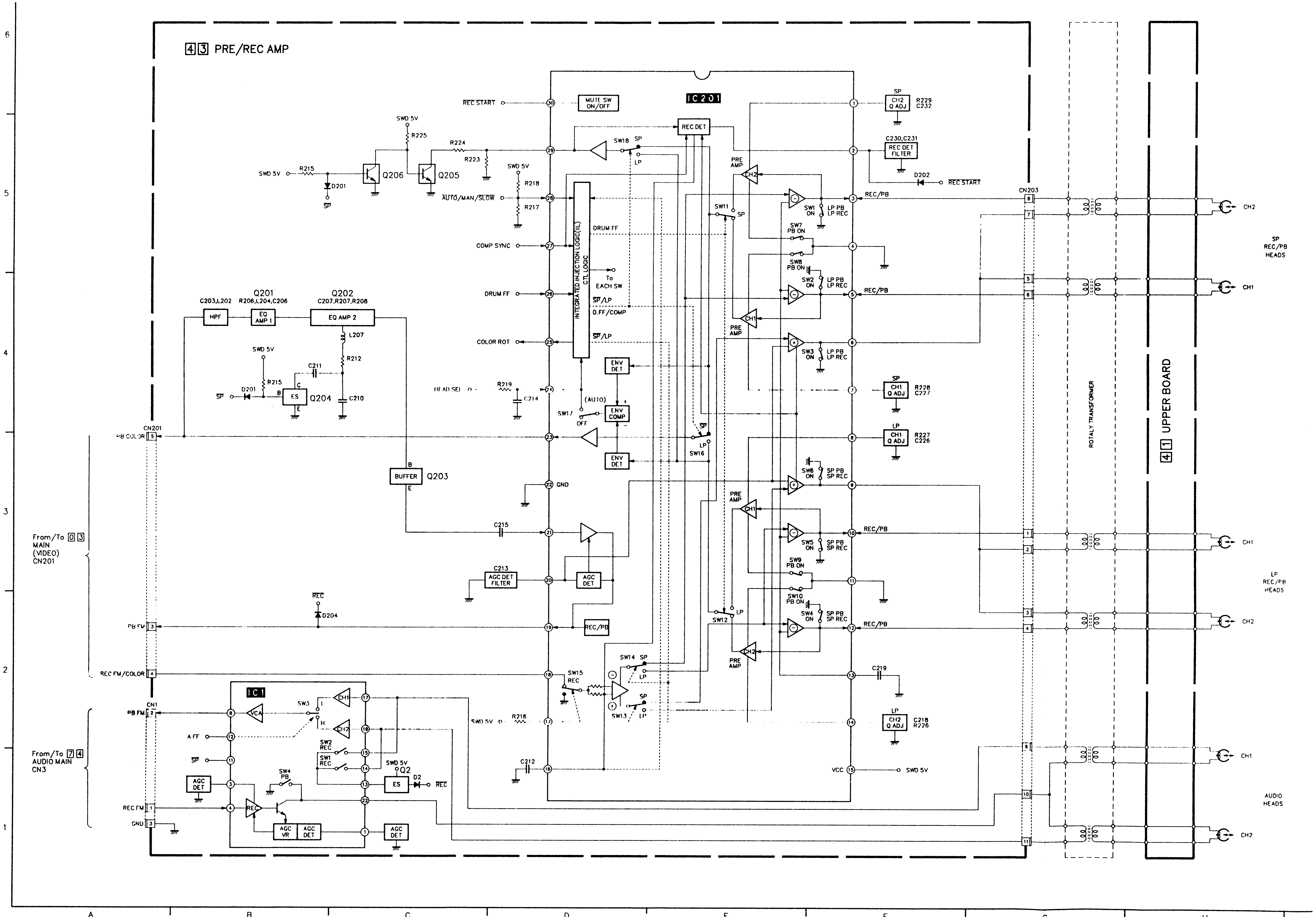

6
5
4
3
2
1
03 MAIN(SERVO)
From/To 03 MAIN (MECHACON)
LP SPECIAL
VP CTL
AVG FM
From 03 MAIN (VIDEO)
PB FM
To 58 DRUM MDA CN1
CN402
DRUM FG/PG
DRUM DRIVE
From/To 03 MAIN (MECHACON)
DRUM CTL V
PULSE
CAP DRIVE
SWD 5V
SM2
MS1
SM3
VS3
SM4
MS8
SM5
MS4
DRUM FF
DIGITAL TRACKING DET
IC451
S/H
HPF
C502,L501
A
B MODE OUT PUT
C
D
VP MM
GND
VCC
IC401
FF VP GEN
DRUM FV
SYNC SEP NOISE DET
ACTIVE FILTER
DRUM GAIN
DRUM PD
DRUM REF
CTL DELAY
NONLINEAR & PHASE LOOP FILTER
R423
R419
SW1
SW2
SW3
SW4
SW5
SW6
SW7
SW8
SW9
SW10
SW11
SW12
SW13
CAP PD
CAP FV
CAP GAIN SW
R411,R412
C413,C414
ACTIVE FILTER
D403
C/D
C/D
SERIAL DEC
D402
D401
DUTY CTL VISS DET
FSC IN
TP401 CTL P
R405
CTL GAIN FILTER
R402,R403
R404,R405
C403,C404
LP SPECIAL
CTL PULSE C/D
CAP FG C/D
S CLK
S DATA
From/To 03 MAIN (MECHACON)
C SYNC
V PULSE
DRUM FF
From/To 03 MAIN (VIDEO)
A FF
To 03 MAIN (AUDIO CTL)
DRUM FF
INDEX
CTL CLOCK
CAP FG
To 03 MAIN (MECHACON)
CN401
CTL HEAD(+)
CTL HEAD(−)
GND
To 12 A/C HEAD CN1
SM1
SM2
SM6
MS7
MS6
VS2
SV2
SV1
SA1
SM1
SM8
SM9
SM7
A
B
C
D
E
F
G
H

3.7 MECHACON BLOCK DIAGRAM

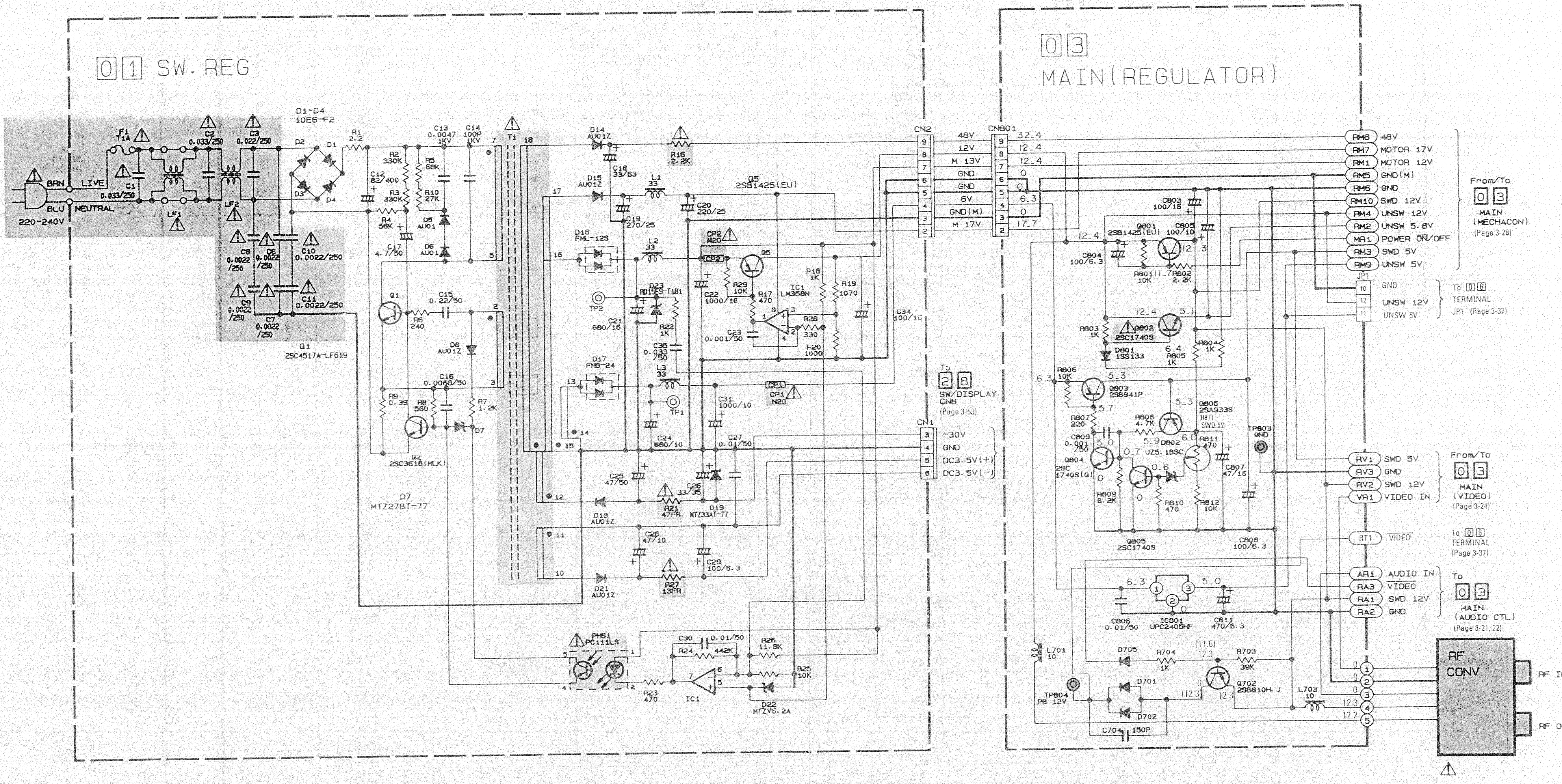


0 3 MECHACON(MAIN)
From 2 0 TIMER CN1
TIMER CLOCK
TIMER DATA
CN603
To 0 3 MAIN (REGULATOR)
POWER ON/OFF
MR1
From/To 0 3 MAIN (SERVO)
DRUM DRIVE
AVRG FM
CAP FG
CTL PULSE
DRUM FF
SM4
SM3
SM6
SM2
SM1
To 0 3 REGULATOR
UNSW 12V
MOTOR 17V
RM4
RM7
MOTOR 12V
D601,C603
RESET
R603,R604
D606
Q601
Q602
VOLTAGE UP for FF
R624,R623
CF601
TH801
MOTOR 12V/17V
R1
R7
R640
R643
R634
UNSW 5.8V
(From REG RM8)
D602
From 3 7 SW/JACK CN4
R PAUSE
GND
5 6 CASSETTE HOUSING
Q2
START SENSOR
CASS SENSOR
CN2
CN3
CN1
CN601
5 1 DECK TERMINAL
5 1 DECK TERMINAL
BY MODE MOTOR
S3
MODE SENSOR
PS1
R3
AMP
S2
REC SAFETY
TAKE UP TURNTABLE
SWD 5V
R5
R4
PS2
AMP
D1
Q1
SUPPLY TURNTABLE
INCL MAIN DECK[M4]
TIMER CLOCK
TIMER DATA
POWER ON/OFF
DRUM DRIVE
AVRG FM
CAP FG
CTL PULSE
DRUM FF
RESET
X IN
X OUT
START SENS
CASSETTE SENS
VOLTAGE UP FOR FF MODE
VCC
V REF
PAUSE IN
MODE SENS A
MODE SENS B
MODE SENS C
REEL FG(TU)
REC SAFETY
THERM
REEL FG(SUP)
END SENS
IC601
DEM DATA
DEM CLK
DEM MUTE
REAR
APT CTL
REC ST
PICTURE MUTE
H SELECT
AUTO/MAN/SLOW
H REC ST
AC DATA
AC CLK
N.D
AI DATA
AUDIO MUTE
AI CLK
A ERASE
V MUTE
SYNC DET
MEMORY DATA
MEMORY CE
TNR CTL
PLL DATA
LOCK DET
V PULSE
SERIAL DATA
SERIAL CLOCK
INDEX
PAUSE
CAP CTL V
REV
LCM 1
LCM 2
TRACKING PRESET & CHANNEL DATA MEMORY
MEMORY DATA OUT
MEMORY DATA IN
MEMORY CE
MEMORY CLOCK
IC602
D603
D605
CN604
DEM DATA
DEM CLK
DEM MUTE
From/To 1 4 DEMOD CN203
MV6
MV1
MV4
MV2
MV3
MV5
MV6
REAR
APT CTL
REC ST
PICTURE MUTE
H SELECT
AUTO/MAN/SLOW
H REC ST
To 0 3 MAIN (VIDEO)
MA2
MA1
AM1
MA5
MA8
MA4
MA9
AC DATA
AC CLK
N.D
AI DATA
AUDIO MUTE
AI CLK
A ERASE
To 0 3 MAIN (AUDIO CTL)
CN702
AUDIO MUTE
V MUTE
SYNC DET
From/To 0 8 TUNER CN2
CN701
TNR CTL
PLL DATA
LOCK DET
PLL CLOCK
To 0 8 TUNER CN1
MS1
MS6
MS7
SM8
MS8
SM5
V PULSE
SERIAL DATA
SERIAL CLOCK
INDEX
PAUSE
CAP CTL V
From/To 0 3 MAIN (SERVO)
5 1 DECK TERMINAL
5 7 CAP MDA
CN601
CN1
CN2
CAP DRIVE
CAP REV
SWD 5V
MOTOR GND
SWD 5V
MOTOR GND
MOTOR 12V
CN602
12V
LCM1
LCM2
IC1
CONTROL LOGIC
5 5 LOADING MDA
M
LOADING MOTOR

3.8 PRE/REC BLOCK DIAGRAM

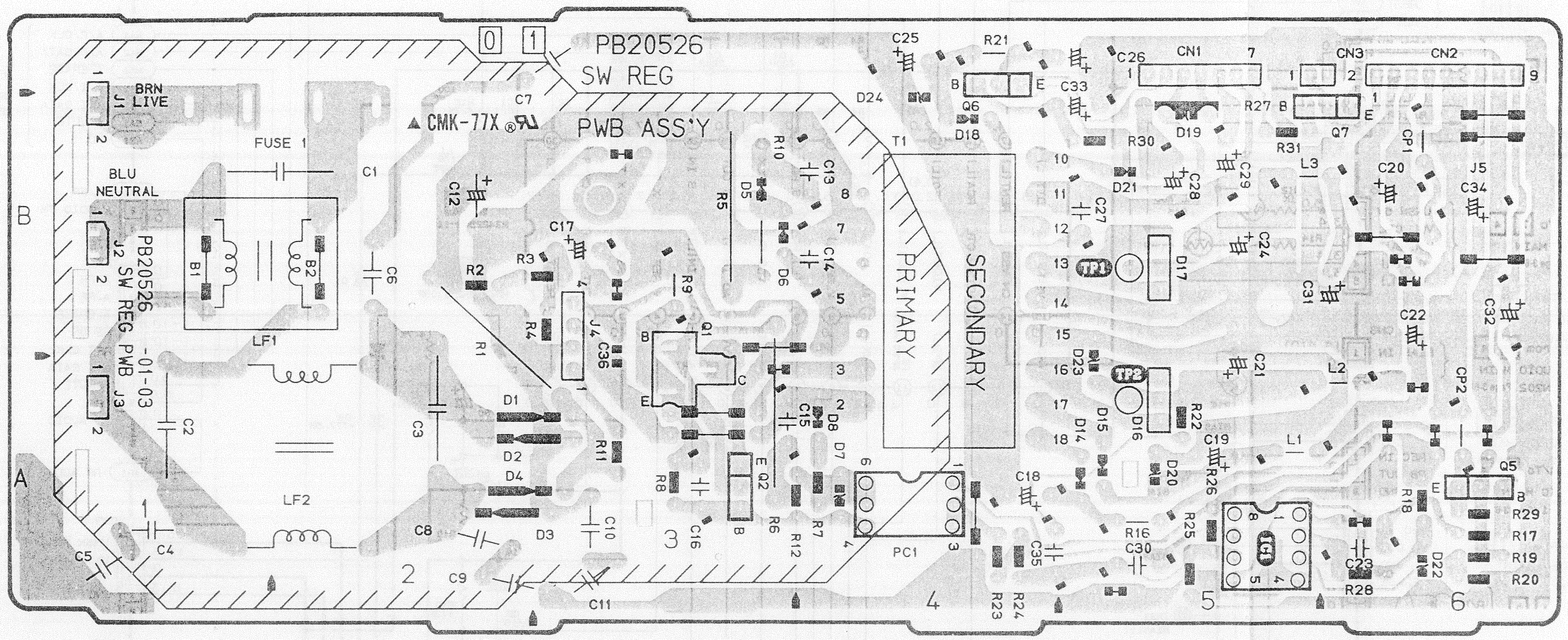

4 3 PRE/REC AMP
IC201
IC1
INTEGRATED INJECTION LOGIC(IIL) CTL LOGIC
REC DET
MUTE SW ON/OFF
REC START
AUTO/MAN/SLOW
COMP SYNC
DRUM FF
COLOR ROT
HEAD SEL
PB COLOR
PB FM
REC FM/COLOR
REC FM
GND
A FF
SP
SWD 5V
Q201
Q202
Q203
Q204
Q205
Q206
Q2
HPF
EQ AMP 1
EQ AMP 2
BUFFER
ES
ENV DET
ENV COMP
AGC DET
AGC DET FILTER
AGC VR
REC/PB
REC DET FILTER
CH1 Q ADJ
CH2 Q ADJ
PRE AMP
VCA
VCC
D201
D202
D204
D2
SW1 ON LP PB LP REC
SW2 ON LP PB LP REC
SW3 ON LP PB LP REC
SW4 ON SP PB SP REC
SW5 ON SP PB SP REC
SW6 ON SP PB SP REC
SW7 PB ON
SW8 PB ON
SW9 PB ON
SW10 PB ON
SW11
SW12
SW13
SW14
SW15 REC
SW16
SW17 OFF (AUIO)
SW18
DRUM FF
To EACH SW
SP/LP
O.FF/COMP
CN201
CN1
CN203
From/To 0 3 MAIN (VIDEO) CN201
From/To 7 4 AUDIO MAIN CN3
ROTALY TRANSFORMER
4 1 UPPER BOARD
SP REC/PB HEADS
LP REC/PB HEADS
AUDIO HEADS
CH1
CH2
R215
R216
R217
R218
R219
R223
R224
R225
C203,L202
R206,L204,C206
C207,R207,R208
L207
R212
C211
C210
C212
C213
C214
C215
C219
C230,C231
R229 C232
R228 C227
R227 C226
C218 R226
1
2
3
4
5
6
A
B
C
D
E
F
G
H

3.9 SWITCHING REGULATOR & REGULATOR (MAIN) SCHEMATIC DIAGRAM

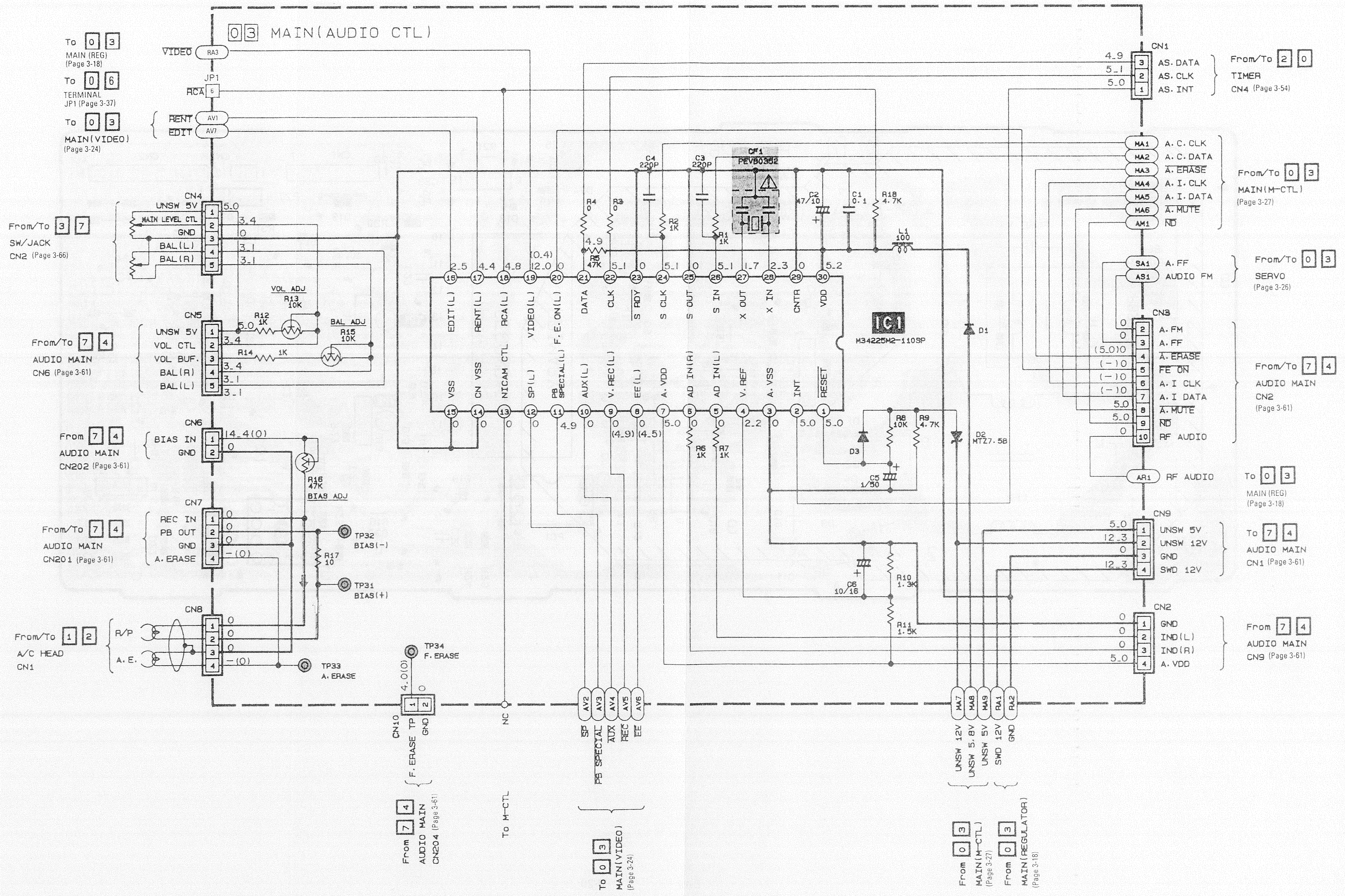


01 SW. REG
03 MAIN(REGULATOR)
BRN
BLU
LIVE
NEUTRAL
220-240V
F1 T1A
C1 0.033/250
C2 0.033/250
C3 0.022/250
LF1
LF2
C8 0.0022/250
C6 0.0022/250
C10 0.0022/250
C9 0.0022/250
C7 0.0022/250
C11 0.0022/250
D1-D4 10E6-F2
D1
D2
D3
D4
R1 2.2
C13 0.0047 1KV
C14 100P 1KV
C12 82/400
R2 330K
R3 330K
R4 56K
R5 68K
R10 27K
D5 AU01
D6 AU01
C17 4.7/50
Q1
Q1 2SC4517A-LF619
C15 0.22/50
R6 240
D8 AU01Z
C16 0.0068/50
R9 0.39
R8 560
R7 1.2K
Q2
Q2 2SC3618(MLK)
D7
D7 MTZ27BT-77
T1
D14 AU01Z
C18 33/63
R16 2.2K
D15 AU01Z
L1 33
C19 270/25
C20 220/25
Q5 2SB1425(EU)
D16 FML-12S
L2 33
CP2 N20
Q5
TP2
C21 680/16
D23 RD15ES-T1B1
R22 1K
C35 0.033/50
C22 1000/16
R29 10K
R17 470
IC1 LM358N
R18 1K
R19 1070
C34 100/16
R28 330
R20 1000
C23 0.001/50
D17 FMB-24
L3 33
TP1
C31 1000/10
CP1 N20
C24 680/10
C27 0.01/50
C25 47/50
C26 33/35
D19 MTZ33AT-77
R21 47FR
D18 AU01Z
C28 47/10
C29 100/6.3
R27 13FR
D21 AU01Z
PH51 PC111LS
C30 0.01/50
R24 442K
R26 11.8K
R25 10K
R23 470
IC1
D22 MTZV6.2A
CN2
CN801
48V
12V
M 13V
GND
GND
6V
GND(M)
M 17V
32.4
12.4
12.4
0
0
6.3
0
17.7
CN1
-30V
GND
DC3.5V(+)
DC3.5V(-)
To 28 SW/DISPLAY CN8 (Page 3-53)
C803 100/16
Q801 2SB1425(EU)
C805 100/10
12.4
12.3
C804 100/6.3
R801 10K
R802 2.2K
Q802 2SC1740S
R803 1K
D801 1SS133
6.4
R805 1K
R804 1K
R806 10K
Q803 2SB941P
5.3
5.7
R807 220
R808 4.7K
Q806 2SA933S
R811 470
SWD 5V
C809 0.001/50
Q804 2SC1740S(Q)
D802 UZ5.1BSC
5.9
0.7
0.6
6.0
C807 47/16
TP803 GND
R809 8.2K
R810 470
R812 10K
Q805 2SC1740S
C808 100/6.3
C806 0.01/50
IC801 UPC2405HF
C811 470/6.3
6.3
5.0
L701 10
D705
R704 1K
(11.6) 12.3
R703 39K
TP804 PB 12V
D701
D702
Q702 2SB810H.J
(12.3)
12.3
L703 10
C704 150P
12.2
RM8 48V
RM7 MOTOR 17V
RM1 MOTOR 12V
RM5 GND(M)
RM6 GND
RM10 SWD 12V
RM4 UNSW 12V
RM2 UNSW 5.8V
MR1 POWER ON/OFF
RM3 SWD 5V
RM9 UNSW 5V
From/To 03 MAIN (MECHACON) (Page 3-28)
JP1
GND
UNSW 12V
UNSW 5V
To 06 TERMINAL JP1 (Page 3-37)
RV1 SWD 5V
RV3 GND
RV2 SWD 12V
VR1 VIDEO IN
From/To 03 MAIN (VIDEO) (Page 3-24)
RT1 VIDEO
To 06 TERMINAL (Page 3-37)
AR1 AUDIO IN
RA3 VIDEO
RA1 SWD 12V
RA2 GND
To 03 MAIN (AUDIO CTL) (Page 3-21, 22)
RF CONV
RF IN
RF OUT

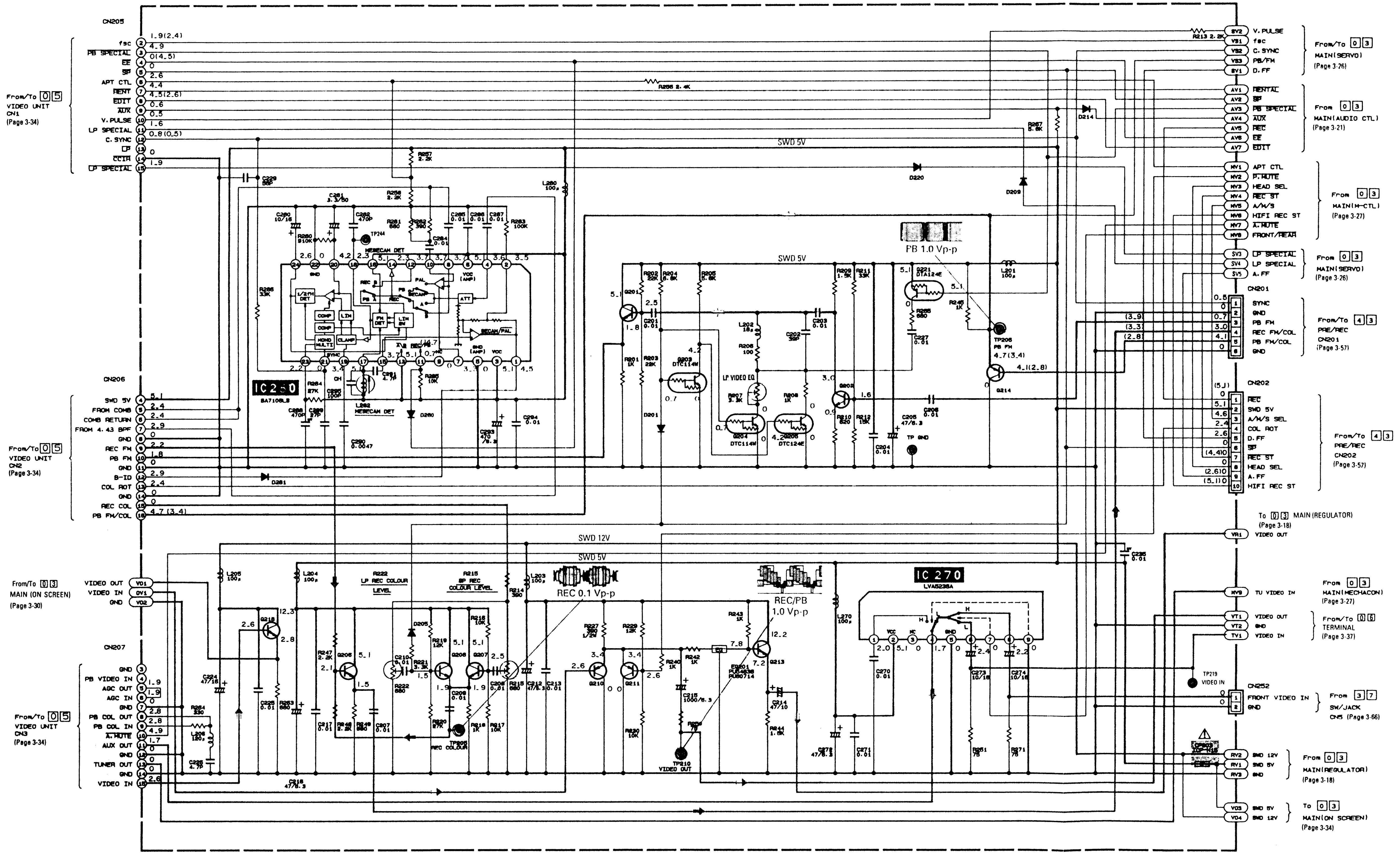
3.10 SWITCHING REGULATOR CIRCUIT BOARD


PB20526
SW REG
PWB ASS'Y
▲CMK-77X
PB20526
SW REG PWB
-01-03
0
1
BRN
LIVE
BLU
NEUTRAL
J1
J2
J3
J4
J5
FUSE 1
LF1
LF2
B1
B2
C1
C2
C3
C4
C5
C6
C7
C8
C9
C10
C11
C12
C13
C14
C15
C16
C17
C18
C19
C20
C21
C22
C23
C24
C25
C26
C27
C28
C29
C30
C31
C32
C33
C34
C35
C36
D1
D2
D3
D4
D5
D6
D7
D8
D14
D15
D16
D17
D18
D19
D20
D21
D22
D23
D24
R1
R2
R3
R4
R5
R6
R7
R8
R9
R10
R11
R12
R16
R17
R18
R19
R20
R21
R22
R23
R24
R25
R26
R27
R28
R29
R30
R31
Q1
Q2
Q5
Q6
Q7
T1
PRIMARY
SECONDARY
PC1
IC1
TP1
TP2
L1
L2
L3
CP1
CP2
CN1
CN2
CN3
A
B
1
2
3
4
5
6

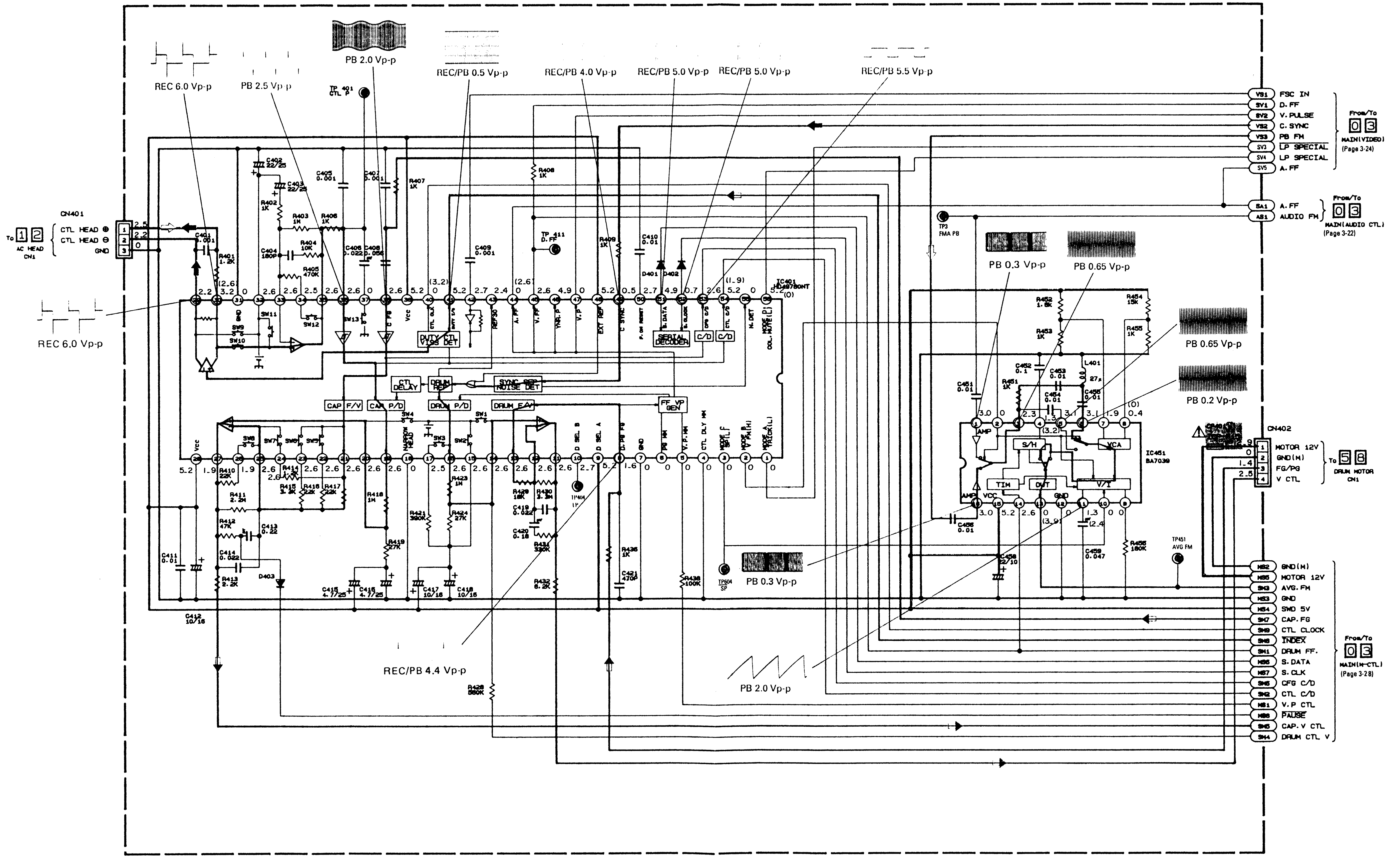
3.11 AUDIO CTL SCHEMATIC DIAGRAM


03 MAIN(AUDIO CTL)
To 03 MAIN (REG) (Page 3-18)
To 06 TERMINAL JP1 (Page 3-37)
To 03 MAIN(VIDEO) (Page 3-24)
VIDEO RA3
JP1 RCA 6
RENT AV1
EDIT AV7
From/To 37 SW/JACK CN2 (Page 3-66)
CN4
UNSW 5V
MAIN LEVEL CTL
GND
BAL(L)
BAL(R)
From/To 74 AUDIO MAIN CN6 (Page 3-61)
CN5
UNSW 5V
VOL CTL
VOL BUF.
BAL(R)
BAL(L)
VOL ADJ R13 10K
R12 1K
BAL ADJ R15 10K
R14 1K
From 74 AUDIO MAIN CN202 (Page 3-61)
CN6
BIAS IN
GND
R16 47K BIAS ADJ
From/To 74 AUDIO MAIN CN201 (Page 3-61)
CN7
REC IN
PB OUT
GND
A. ERASE
TP32 BIAS(−)
R17 10
TP31 BIAS(+)
From/To 12 A/C HEAD CN1
CN8
R/P
A. E.
TP33 A. ERASE
TP34 F. ERASE
CN10
F. ERASE TP
GND
From 74 AUDIO MAIN CN204 (Page 3-61)
NC
To M-CTL
AV2 AV3 AV4 AV5 AV6
SP
PB SPECIAL
AUX
REC
EE
To 03 MAIN(VIDEO) (Page 3-24)
C4 220P
C3 220P
CF1 PEVB0362
R4 0
R3 0
R5 47K
R2 1K
R1 1K
C2 47/10
C1 0.1
R18 4.7K
L1 100
IC1 M34225M2-110SP
EDIT(L)
RENT(L)
RCA(L)
VIDEO(L)
F. E. ON(L)
DATA
CLK
S RDY
S CLK
S OUT
S IN
X OUT
X IN
CNTR
VDD
VSS
CN VSS
NICAM CTL
SP(L)
PB SPECIAL(L)
AUX(L)
V. REC(L)
EE(L)
A. VDD
AD IN(R)
AD IN(L)
V. REF
A. VSS
INT
RESET
D1
D2 MTZ7.5B
D3
R8 10K
R9 4.7K
R6 1K
R7 1K
C5 1/50
C6 10/16
R10 1.3K
R11 1.5K
CN1
AS. DATA
AS. CLK
AS. INT
From/To 20 TIMER CN4 (Page 3-54)
MA1 A. C. CLK
MA2 A. C. DATA
MA3 A. ERASE
MA4 A. I. CLK
MA5 A. I. DATA
MA6 A. MUTE
AM1 ND
From/To 03 MAIN(M-CTL) (Page 3-27)
SA1 A. FF
AS1 AUDIO FM
From/To 03 SERVO (Page 3-26)
CN3
A. FM
A. FF
A. ERASE
FE ON
A. I CLK
A. I DATA
A. MUTE
ND
RF AUDIO
From/To 74 AUDIO MAIN CN2 (Page 3-61)
AR1 RF AUDIO
To 03 MAIN (REG) (Page 3-18)
CN9
UNSW 5V
UNSW 12V
GND
SWD 12V
To 74 AUDIO MAIN CN1 (Page 3-61)
CN2
GND
IND(L)
IND(R)
A. VDD
From 74 AUDIO MAIN CN9 (Page 3-61)
MA7 MA8 MA9 RA1 RA2
UNSW 12V
UNSW 5.8V
UNSW 5V
SWD 12V
GND
From 03 MAIN(M-CTL) (Page 3-27)
From 03 MAIN(REGULATOR) (Page 3-18)
6 5 4 3 2 1
A B C E F G H

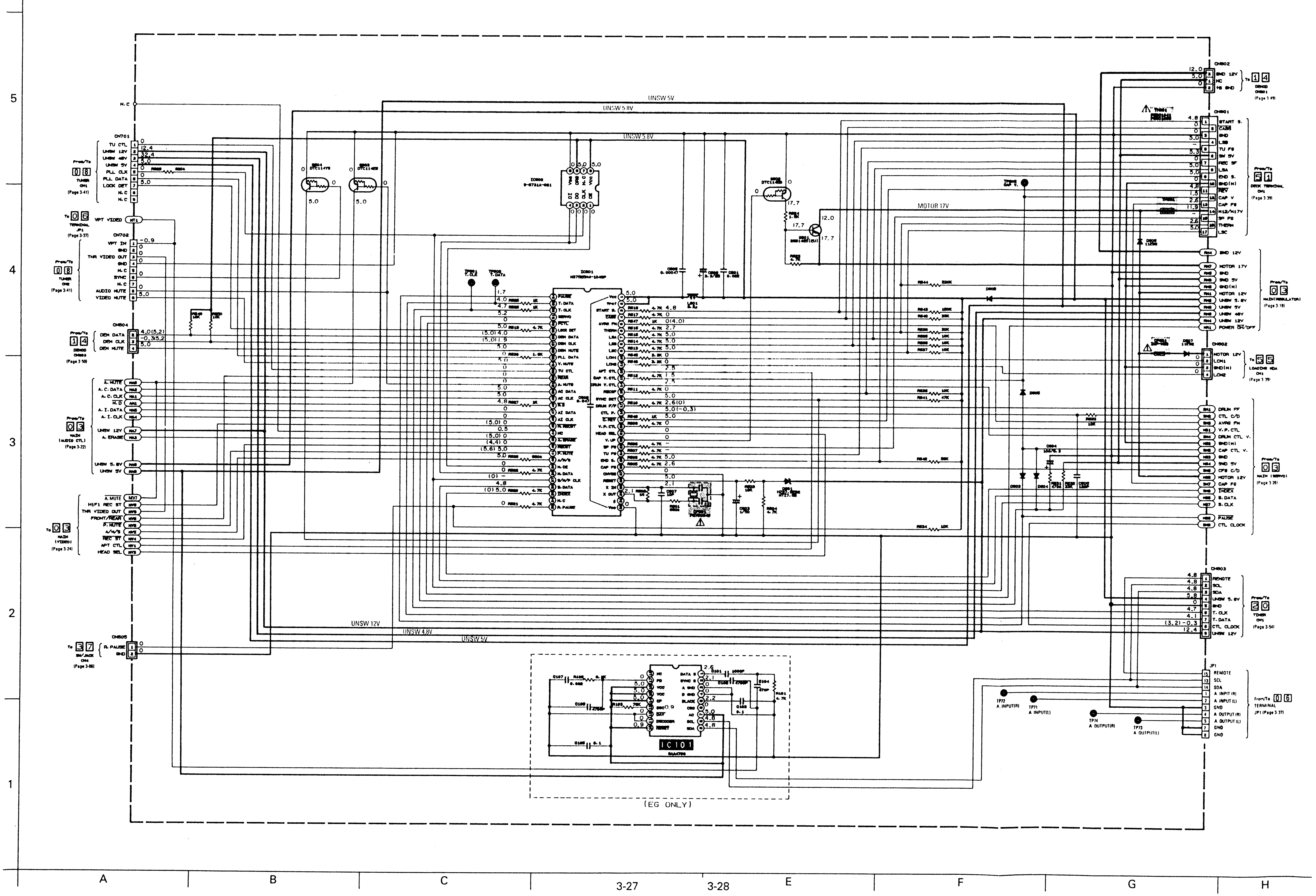
3.12 VIDEO SCHEMATIC DIAGRAM


CN205
fsc
PB SPECIAL
EE
SP
APT CTL
RENT
EDIT
AUX
V. PULSE
LP SPECIAL
C. SYNC
LP
CCIR
LP SPECIAL
From/To 0 5
VIDEO UNIT
CN1
(Page 3-34)
SWD 5V
IC250
BA7108LS
HEBECAM DET
PB 1.0 Vp-p
CN206
SWD 5V
FROM COMB
COMB RETURN
FROM 4.43 BPF
GND
REC FM
PB FM
GND
B-ID
COL ROT
GND
REC COL
PB FM/COL
From/To 0 5
VIDEO UNIT
CN2
(Page 3-34)
SWD 12V
From/To 0 3
MAIN (ON SCREEN)
(Page 3-30)
VIDEO OUT
VIDEO IN
GND
CN207
GND
PB VIDEO IN
AGC OUT
AGC IN
GND
PB COL OUT
PB COL IN
A. MUTE
AUX OUT
GND
TUNER OUT
GND
VIDEO IN
From/To 0 5
VIDEO UNIT
CN3
(Page 3-34)
LP REC COLOUR LEVEL
SP REC COLOUR LEVEL
REC 0.1 Vp-p
REC/PB 1.0 Vp-p
TP210 VIDEO OUT
TP205 REC COLOUR
IC270
LVA5238A
V. PULSE
fsc
C. SYNC
PB/FM
D. FF
From/To 0 3
MAIN (SERVO)
(Page 3-26)
RENTAL
SP
PB SPECIAL
AUX
REC
EE
EDIT
From 0 3
MAIN (AUDIO CTL)
(Page 3-21)
APT CTL
P. MUTE
HEAD SEL
REC ST
A/N/S
HIFI REC ST
A. MUTE
FRONT/REAR
From 0 3
MAIN (M-CTL)
(Page 3-27)
LP SPECIAL
LP SPECIAL
A. FF
From 0 3
MAIN (SERVO)
(Page 3-26)
CN201
SYNC
GND
PB FM
REC FM/COL
PB FM/COL
GND
From/To 4 3
PRE/REC
CN201
(Page 3-57)
CN202
REC
SWD 5V
A/N/S SEL
COL ROT
D. FF
SP
REC ST
HEAD SEL
A. FF
HIFI REC ST
From/To 4 3
PRE/REC
CN202
(Page 3-57)
To 0 3 MAIN (REGULATOR)
(Page 3-18)
VIDEO OUT
TU VIDEO IN
From 0 3
MAIN (MECHACON)
(Page 3-27)
VIDEO OUT
GND
VIDEO IN
From/To 0 6
TERMINAL
(Page 3-37)
TP219 VIDEO IN
CN252
FRONT VIDEO IN
GND
From 3 7
SW/JACK
CN5 (Page 3-66)
SWD 12V
SWD 5V
GND
From 0 3
MAIN (REGULATOR)
(Page 3-18)
SWD 5V
SWD 12V
To 0 3
MAIN (ON SCREEN)
(Page 3-34)
6
5
4
3
2
1
A
B
C
D
E
F
G
H

3.13 SERVO SCHEMATIC DIAGRAM

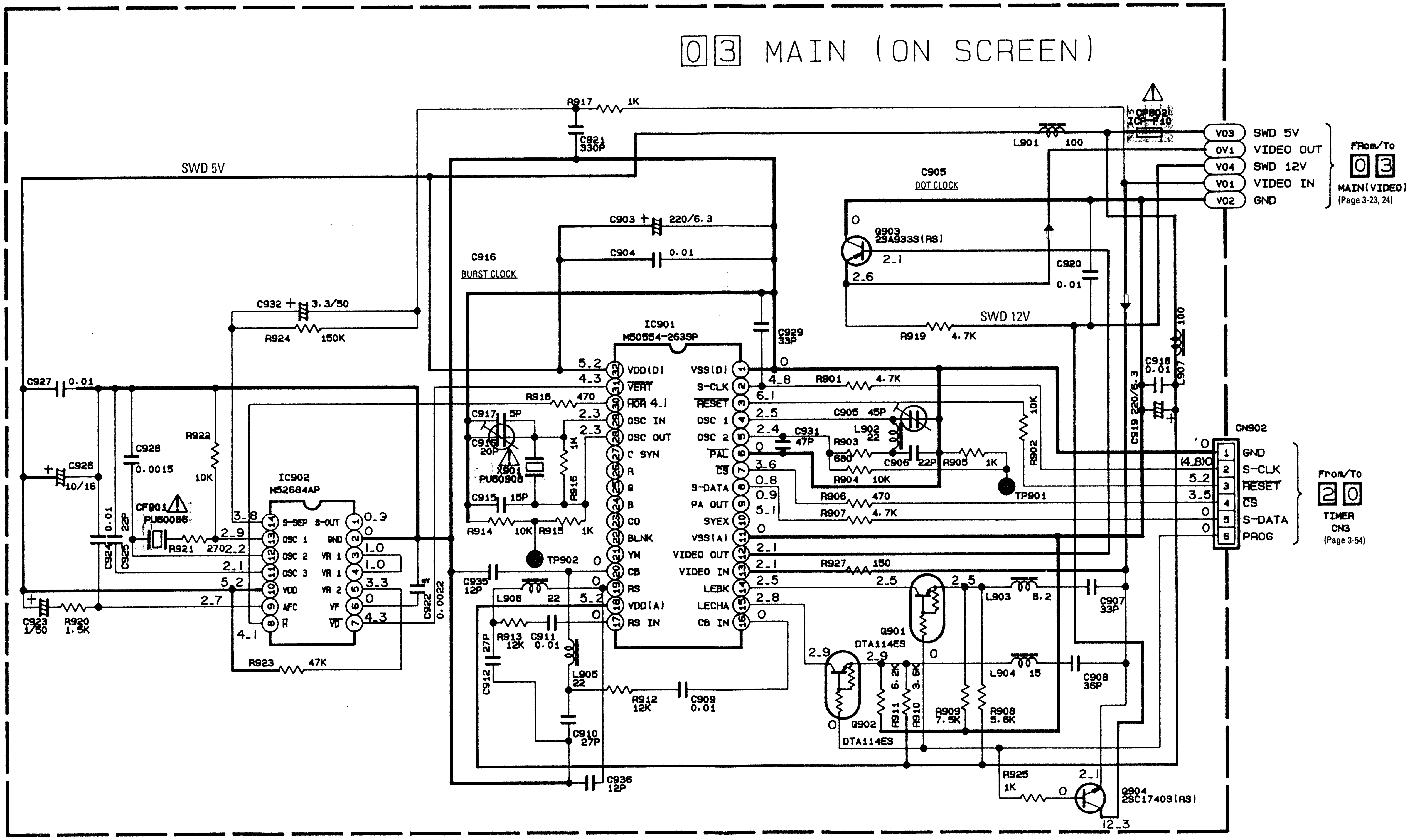

REC 6.0 Vp-p
PB 2.5 Vp-p
PB 2.0 Vp-p
REC/PB 0.5 Vp-p
REC/PB 4.0 Vp-p
REC/PB 5.0 Vp-p
REC/PB 5.0 Vp-p
REC/PB 5.5 Vp-p
TP 401 CTL P
TP 411 D.FF
TP3 FMA PB
CN401
To 1 2 AC HEAD CN1
CTL HEAD ⊕
CTL HEAD ⊖
GND
REC 6.0 Vp-p
IC401 HD49780NT
DUTY CTL V.SS DET
CTL DELAY
DRUM REF
SYNC SEP NOISE DET
SERIAL DECODER
C/D
C/D
CAP F/V
CAP P/D
DRUM P/D
DRUM F/V
FF VP GEN
PB 0.3 Vp-p
PB 0.65 Vp-p
PB 0.65 Vp-p
PB 0.2 Vp-p
IC451 BA7039
AMP
S/H
VCA
TIM
DUT
V/I
CN402
MOTOR 12V
GND(M)
FG/PG
V CTL
To 5 8 DRUM MOTOR CN1
TP451 AVG FM
TP604 SP
PB 0.3 Vp-p
REC/PB 4.4 Vp-p
PB 2.0 Vp-p
VS1 FSC IN
SV1 D.FF
SV2 V.PULSE
VS2 C.SYNC
VS3 PB FM
SV3 LP SPECIAL
SV4 LP SPECIAL
SV5 A.FF
From/To 0 3 MAIN(VIDEO) (Page 3-24)
SA1 A.FF
AS1 AUDIO FM
From/To 0 3 MAIN(AUDIO CTL) (Page 3-22)
MS2 GND(M)
MS5 MOTOR 12V
SM3 AVG.FM
MS3 GND
MS4 SWD 5V
SM7 CAP.FG
SM9 CTL CLOCK
SM8 INDEX
SM1 DRUM FF.
MS6 S.DATA
MS7 S.CLK
SM6 CFG C/D
SM2 CTL C/D
MS1 V.P CTL
MS8 PAUSE
SM5 CAP.V CTL
SM4 DRUM CTL V
From/To 0 3 MAIN(M-CTL) (Page 3-28)
6
5
4
3
2
1
A
B
C
E
F
G
H

3.14 MECHACON SCHEMATIC DIAGRAM

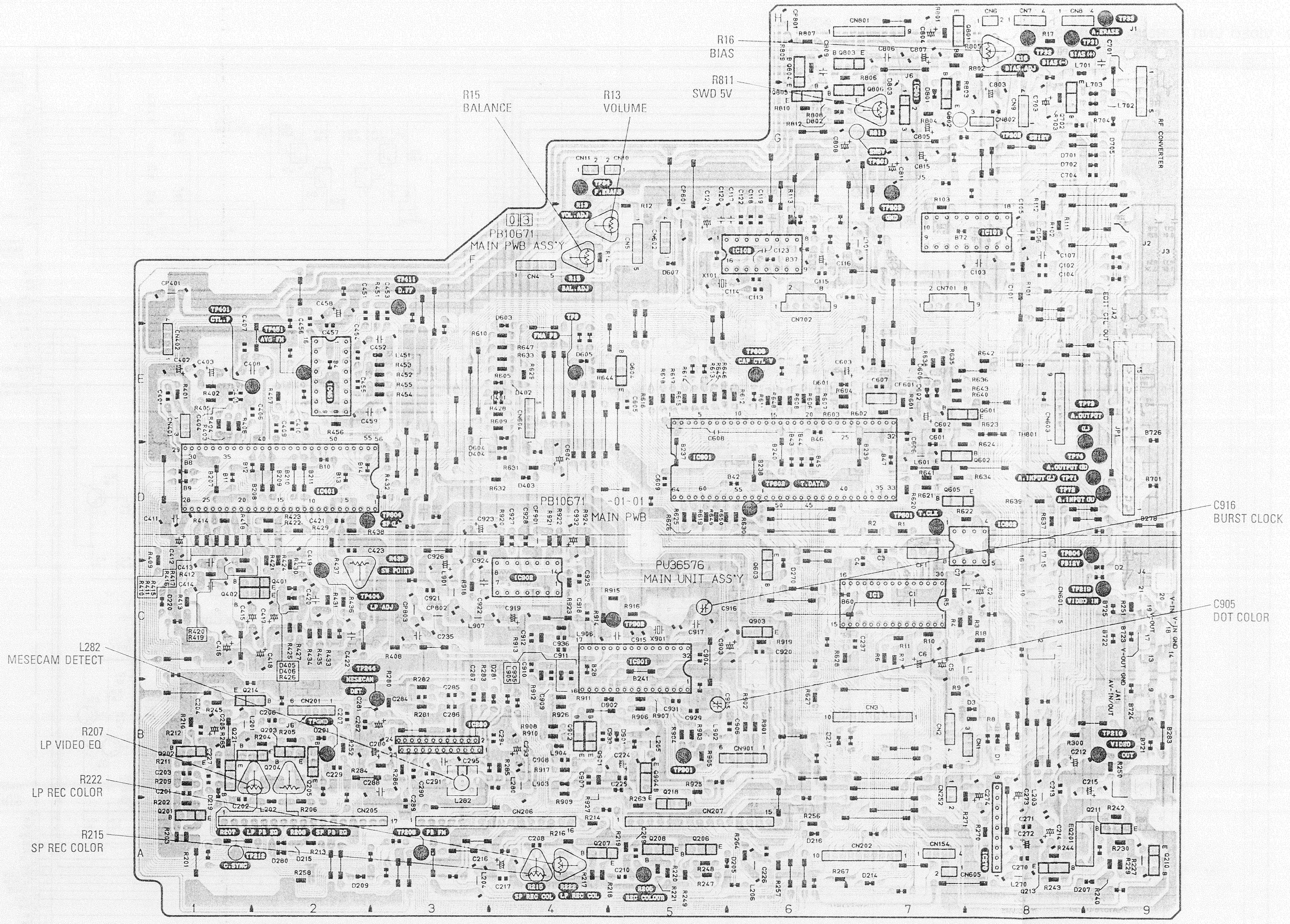


6
5
4
3
2
1
A
B
C
E
F
G
H
UNSW 5V
UNSW 5.8V
UNSW 5.8V
MOTOR 17V
UNSW 12V
UNSW 4.8V
UNSW 5V
N.C
CN701
TU CTL
UNSW 12V
UNSW 48V
UNSW 5V
PLL CLK
PLL DATA
LOCK DET
N.C
N.C
From/To 08 TUNER CN1 (Page 3-41)
VPT VIDEO
To 06 TERMINAL JP1 (Page 3-37)
CN702
VPT IN
GND
TNR VIDEO OUT
GND
N.C
SYNC
N.C
AUDIO MUTE
VIDEO MUTE
From/To 08 TUNER CN2 (Page 3-41)
CN504
DEM DATA
DEM CLK
DEM MUTE
From/To 14 DEMOD CN803 (Page 3-50)
A. MUTE
A. C. DATA
A. C. CLK
N. D
A. I. DATA
A. I. CLK
UNSW 12V
A. ERASE
UNSW 5.8V
UNSW 5V
From/To 03 MAIN (AUDIO CTL) (Page 3-22)
A. MUTE
HIFI REC ST
TNR VIDEO OUT
FRONT/REAR
P. MUTE
A/M/S
REC ST
APT CTL
HEAD SEL
To 03 MAIN (VIDEO) (Page 3-24)
CN505
R. PAUSE
GND
To 37 SW/JACK CN4 (Page 3-86)
DTC114YS
DTC114ES
IC802
T.CLK
T.DATA
IC801
PAUSE
T. DATA
T. CLK
SERVO
FCTL
LOCK DET
DEM DATA
DEM CLK
DEM MUTE
PLL DATA
V. MUTE
TU CTL
REAR
A. MUTE
AC DATA
AC CLK
N.D
AI DATA
AI CLK
M. RESET
NC
A. ERASE
RESET
P. MUTE
A/M/S
M. CE
M. DATA
S/M/P CLK
S. DATA
INDEX
N.C
R. PAUSE
Vcc
Vref
START S.
CASS
AVRG FM
THERM
LSA
LSB
LSC
LCM1
LCM2
APT CTL
CAP V. CTL
DRUM V. CTL
RECSF
SYNC DET
DRUM F/F
CTL P.
C. REV
V. P. CTL
HEAD SEL
V. UP
SP FG
TU FG
END S.
CAP FG
CNVSS
RESET
X IN
X OUT
Vss
C807 10P
L801
R834 10K
R844 220K
D802
TP806 CAP V.
DTC114ES
2SB1425(U)
R804 1.5K
R802 4.7K
CN802
GND 12V
NC
HS GND
To 14 DEMOD CN801 (Page 3-49)
TH801
CN801
START S.
CASS
GND
LSB
TU FG
SW 5V
REC SF
LSA
END S.
GND(M)
REV
CAP V
CAP FG
M12/M17V
SP FG
THERM
LSC
From/To 51 DECK TERMINAL CN1 (Page 3-39)
D808 11ES2
GND 12V
MOTOR 17V
GND
SMD 5V
GND(M)
MOTOR 12V
UNSW 5.8V
UNSW 5V
UNSW 48V
UNSW 12V
POWER ON/OFF
From/To 03 MAIN (REGULATOR) (Page 3-18)
D807 11ES2
CN802
MOTOR 12V
LCM1
GND(M)
LCM2
To 55 LOADING MDA CN1 (Page 3-39)
DRUM FF
CTL C/D
AVRG FM
V.P.CTL
DRUM CTL V.
GND(M)
CAP CTL V.
GND
SMD 5V
CFG C/D
MOTOR 12V
CAP FG
INDEX
S. DATA
S. CLK
PAUSE
CTL CLOCK
From/To 03 MAIN (SERVO) (Page 3-26)
CN803
REMOTE
SCL
SDA
UNSW 5.8V
GND
T. CLK
T. DATA
CTL CLOCK
UNSW 12V
From/To 20 TIMER CN1 (Page 3-54)
JP1
REMOTE
SCL
SDA
A. INPIT (R)
A. INPUT (L)
GND
A. OUTPUT (R)
A. OUTPUT (L)
GND
GND
From/To 06 TERMINAL JP1 (Page 3-37)
TP72 A. INPUT(R)
TP71 A. INPUT(L)
TP74 A. OUTPUT(R)
TP73 A. OUTPUT(L)
NC
PD
VCC
VCC
SP
OSC
DAV
DECODER
RESET
DATA B
SYNC B
A GND
D GND
BLACK
CBS
AO
SCL
SDA
IC101
(EG ONLY)

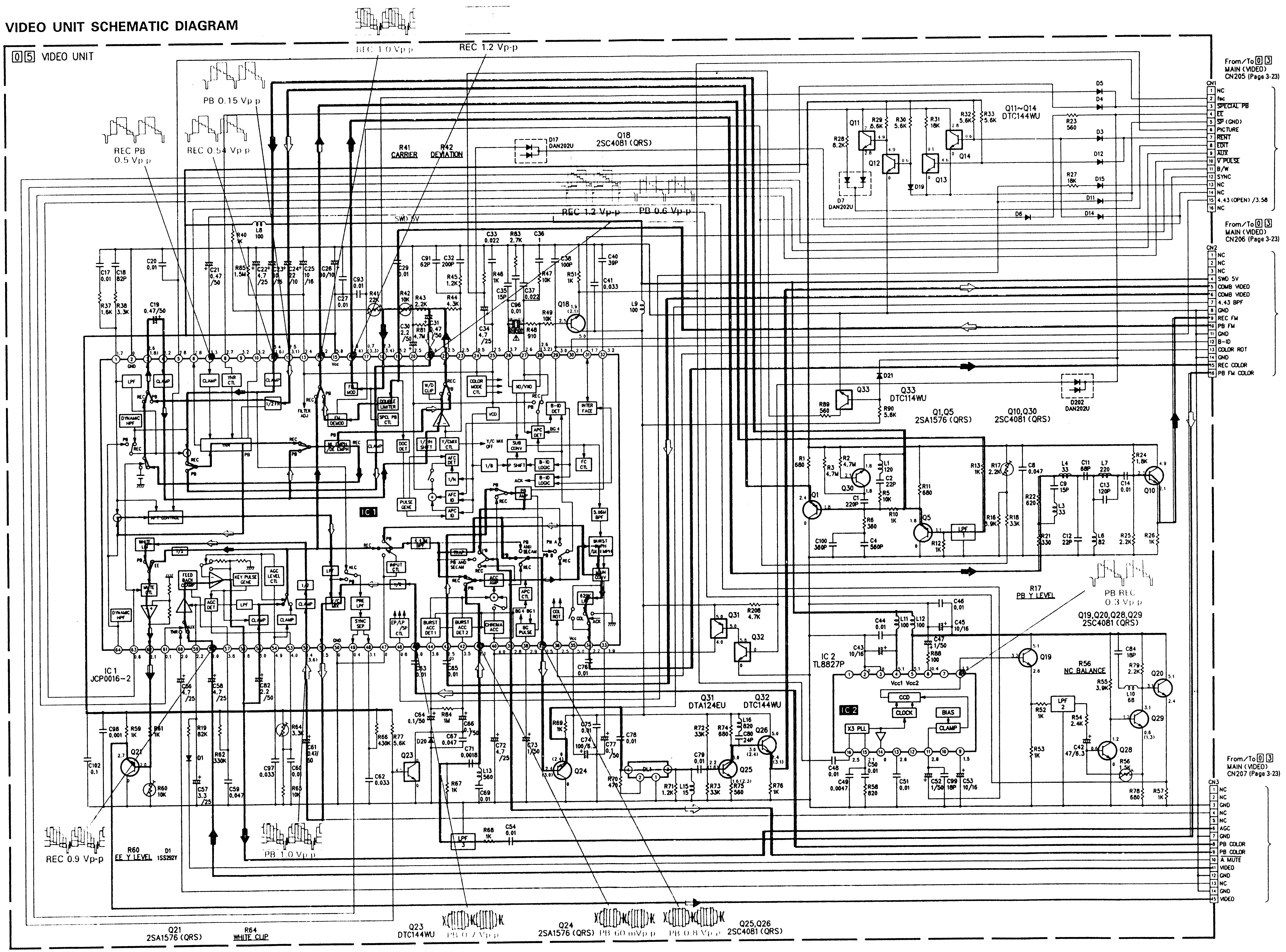
3.15 ON SCREEN SCHEMATIC DIAGRAM


03 MAIN (ON SCREEN)
IC901
M50554-263SP
IC902
M52684AP
VDD(D)
VERT
HOR
OSC IN
OSC OUT
C SYN
R
G
B
CO
BLNK
YM
CB
RS
VDD(A)
RS IN
VSS(D)
S-CLK
RESET
OSC 1
OSC 2
PAL
CS
S-DATA
PA OUT
SYEX
VSS(A)
VIDEO OUT
VIDEO IN
LEBK
LECHA
CB IN
S-SEP
S-OUT
OSC 1
GND
OSC 2
VR 1
OSC 3
VDD
VR 2
AFC
VF
H
VD
SWD 5V
SWD 12V
C916
BURST CLOCK
C905
DOT CLOCK
R917 1K
C921 330P
C903 220/6.3
C904 0.01
C932 3.3/50
R924 150K
C929 33P
C927 0.01
C926 10/16
C928 0.0015
R922 10K
C924 0.01
C925 22P
CF901
PU60086
R921 270
C923 1/50
R920 1.5K
R923 47K
C922 0.0022
C917 5P
C918 20P
X901
PU60908
R918 470
R916 1M
C915 15P
R914 10K
R915 1K
TP902
C935 12P
L906 22
R913 12K
C911 0.01
C912 27P
L905 22
C910 27P
R912 12K
C909 0.01
C936 12P
Q903
2SA933S(RS)
C920 0.01
R919 4.7K
L901 100
CP802
ICP-F10
R901 4.7K
C905 45P
L902 22
C931 47P
R903 680
C906 22P
R905 1K
R904 10K
R902 10K
TP901
R906 470
R907 4.7K
R927 150
Q901
DTA114ES
Q902
DTA114ES
L903 8.2
C907 33P
L904 15
C908 36P
R911 6.2K
R910 3.6K
R909 7.5K
R908 5.6K
R925 1K
Q904
2SC1740S(RS)
C919 220/6.3
C918 0.01
L907 100
V03
0V1
V04
V01
V02
SWD 5V
VIDEO OUT
SWD 12V
VIDEO IN
GND
FRom/To
03
MAIN(VIDEO)
(Page 3-23, 24)
CN902
GND
S-CLK
RESET
CS
S-DATA
PROG
From/To
20
TIMER
CN3
(Page 3-54)

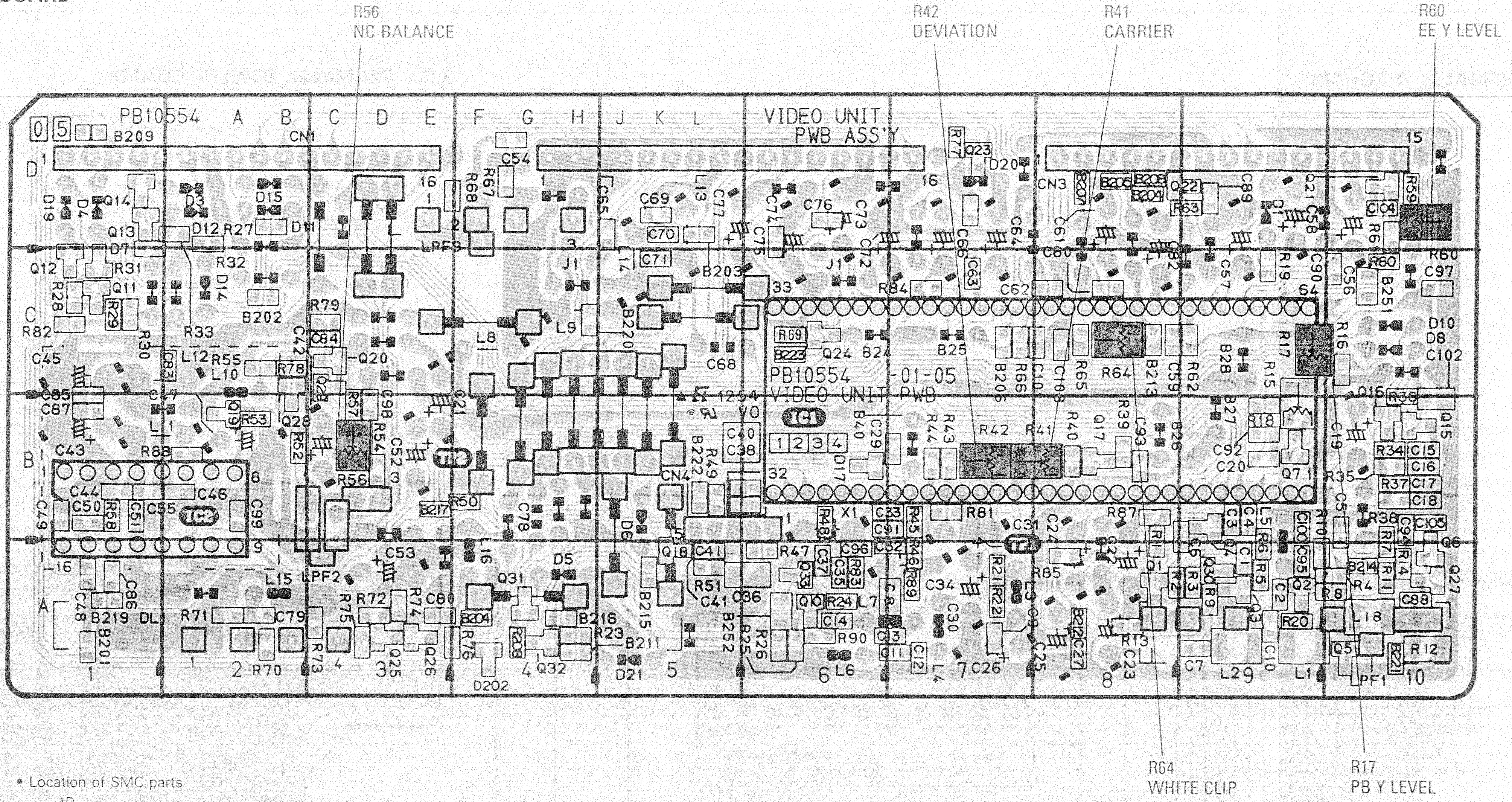
3.16 MAIN CIRCUIT BOARD


R16
BIAS
R811
SWD 5V
R15
BALANCE
R13
VOLUME
PB10671
MAIN PWB ASS'Y
PB10671 -01-01
MAIN PWB
PU36576
MAIN UNIT ASS'Y
RF CONVERTER
C916
BURST CLOCK
C905
DOT COLOR
L282
MESECAM DETECT
R207
LP VIDEO EQ
R222
LP REC COLOR
R215
SP REC COLOR
1
2
3
4
5
6
7
8
9
A
B
C
D
E
F
G
H

3.17 VIDEO UNIT SCHEMATIC DIAGRAM


05 VIDEO UNIT
REC 1.0 Vp-p
REC 1.2 Vp-p
PB 0.15 Vp-p
REC PB 0.5 Vp-p
REC 0.54 Vp-p
REC 1.2 Vp-p
PB 0.6 Vp-p
R41 CARRIER
R42 DEVIATION
D17 DAN202U
Q18 2SC4081 (QRS)
Q11~Q14 DTC144WU
D7 DAN202U
SWD 5V
IC1
IC 1 JCP0016-2
Q33 DTC114WU
Q1,Q5 2SA1576 (QRS)
Q10,Q30 2SC4081 (QRS)
D202 DAN202U
R17 PB Y LEVEL
PB REC 0.3 Vp-p
Q19,Q20,Q28,Q29 2SC4081 (QRS)
IC 2 TL8827P
R56 NC BALANCE
Q31 DTA124EU
Q32 DTC144WU
REC 0.9 Vp-p
PB 1.0 Vp-p
R60 EE Y LEVEL
D1 1SS292Y
Q21 2SA1576 (QRS)
R64 WHITE CLIP
Q23 DTC144WU
PB 0.7 Vp-p
Q24 2SA1576 (QRS)
PB 60 mVp-p
PB 0.8 Vp-p
Q25,Q26 2SC4081 (QRS)
From/To 03 MAIN (VIDEO) CN205 (Page 3-23)
CN1
1 NC
2 fsc
3 SPECIAL PB
4 EE
5 SP (GND)
6 PICTURE
7 RENT
8 EDIT
9 AUX
10 V PULSE
11 B/W
12 SYNC
13 NC
14 NC
15 4.43 (OPEN) /3.58
16 NC
From/To 03 MAIN (VIDEO) CN206 (Page 3-23)
CN2
1 NC
2 NC
3 NC
4 SWD 5V
5 COMB VIDEO
6 COMB VIDEO
7 4.43 BPF
8 GND
9 REC FM
10 PB FM
11 GND
12 B-ID
13 COLOR ROT
14 GND
15 REC COLOR
16 PB FM COLOR
From/To 03 MAIN (VIDEO) CN207 (Page 3-23)
CN3
1 NC
2 NC
3 GND
4 NC
5 NC
6 AGC
7 GND
8 PB COLOR
9 PB COLOR
10 A. MUTE
11 VIDEO
12 GND
13 NC
14 GND
15 VIDEO

3.18 VIDEO UNIT CIRCUIT BOARD


R56
NC BALANCE
R42
DEVIATION
R41
CARRIER
R60
EE Y LEVEL
PB10554
VIDEO UNIT
PWB ASS'Y
PB10554-01-05
VIDEO UNIT PWB
A
B
C
D
E
F
G
H
J
K
L
1
2
3
4
5
6
7
8
10
CN1
CN3
CN4
IC1
IC2
IC3
R64
WHITE CLIP
R17
PB Y LEVEL

- Location of SMC parts

1D ─ Location

REF. No.	LOCATION
TRANSISTOR	
Q1	8A
Q5	10A
Q10	6A
Q11	1C
Q12	1C
Q13	1D
Q14	1D
Q18	5A
Q19	2B
Q20	3C
Q21	10D
Q23	7D
Q24	6C
Q25	3A
Q26	3A
Q28	2B
Q29	3C
Q30	9A
Q31	4A
Q32	4A
Q33	6A

REF. No.	LOCATION
DIODE	
D7	1C
D17	6B
D202	4A

REF. No.	LOCATION
COIL	
L1	9A

REF. No.	LOCATION
RESISTOR	
R1	8A
R2	9A
R3	9A
R5	9A
R6	9A
R10	10A
R11	10A
R12	10A
R13	8A
R16	10C
R17	9C
R18	9B
R19	9C
R21	7A
R22	7A
R23	4A
R24	6A
R25	6A
R26	6A
R27	2D
R28	1C
R29	1C
R30	1C
R31	1C
R32	2D
R33	2D

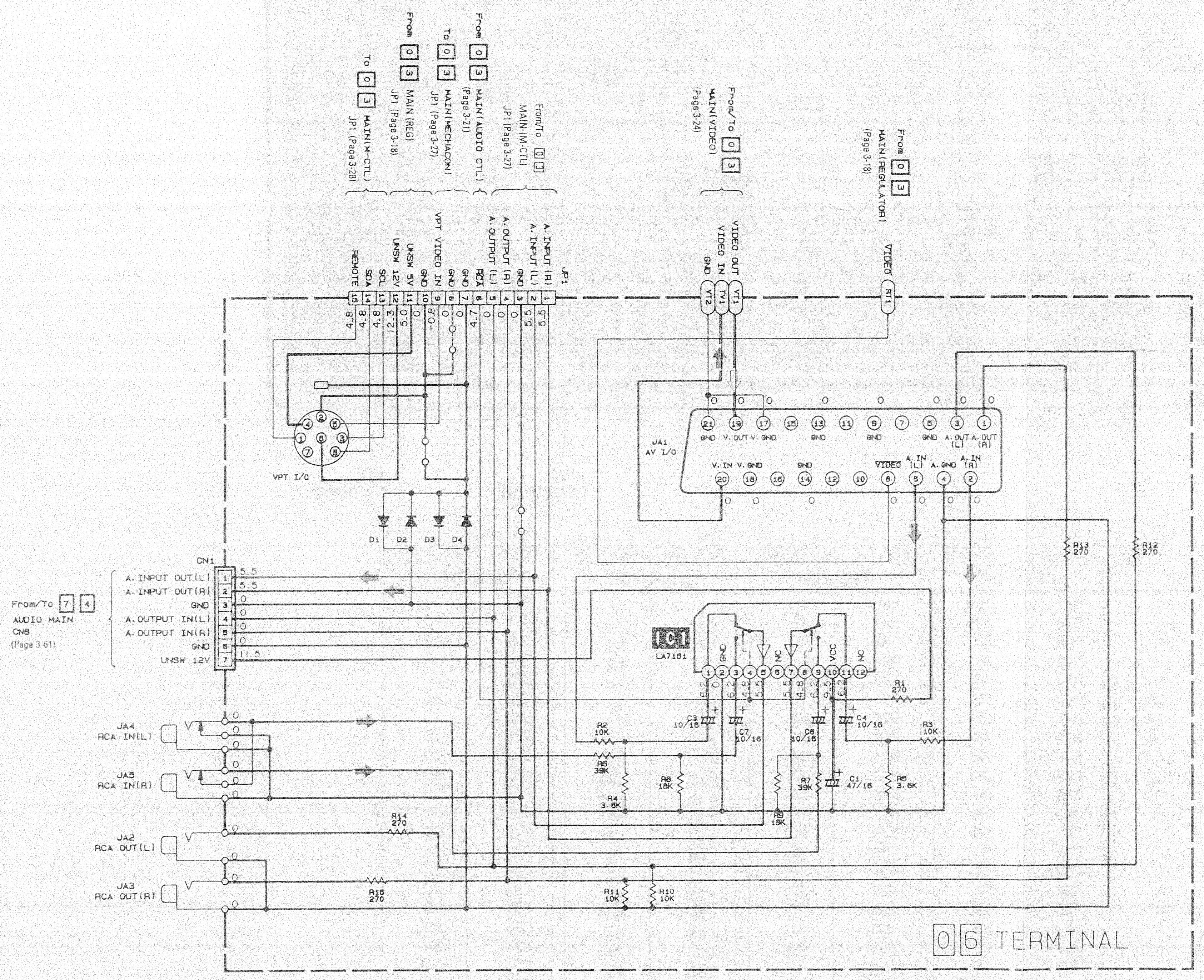
REF. No.	LOCATION
RESISTOR	
R37	10B
R38	10B
R40	8B
R41	8B
R42	7B
R43	7B
R44	7B
R45	7B
R46	7A
R47	6A
R48	6B
R49	5B
R51	5A
R52	2B
R53	2B
R54	3B
R55	2C
R56	3B
R57	3B
R58	1B
R59	10D
R60	10D
R61	10D
R62	9C
R64	8C
R65	8C

REF. No.	LOCATION
RESISTOR	
R66	7C
R67	4D
R68	4D
R69	6C
R70	2A
R71	2A
R72	3A
R73	3A
R74	3A
R75	3A
R76	4A
R77	7D
R78	2C
R79	3C
R81	7B
R83	6A
R84	7C
R85	8A
R88	2B
R89	7A
R90	6A
R208	4A

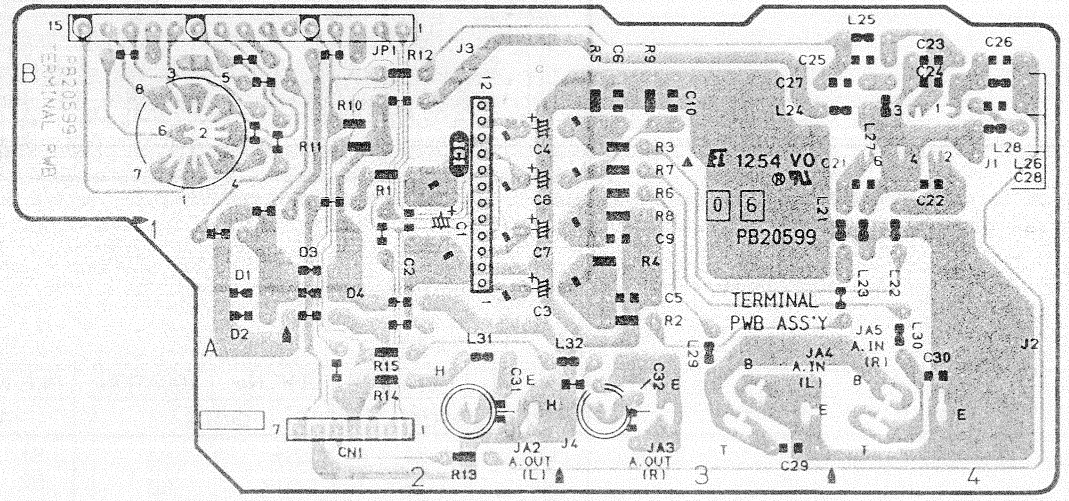
REF. No.	LOCATION
CAPACITOR	
C1	9A
C2	9A
C4	9B
C8	7A
C9	7A
C11	7A
C12	7A
C13	7A
C14	6A
C17	10B
C18	10B
C20	9B
C27	8A
C29	7B
C32	7A
C33	7B
C35	6A
C36	6A
C37	6A
C38	6B
C40	6B
C41	5A
C44	1B
C46	2B
C48	1A
C49	1B

REF. No.	LOCATION
CAPACITOR	
C50	1B
C51	1B
C54	4D
C59	8C
C60	8C
C62	8C
C63	7C
C65	5D
C67	7D
C69	5D
C71	5C
C75	6D
C76	6D
C79	2A
C80	3A
C84	3C
C91	7B
C93	8B
C96	6A
C97	10C
C98	3B
C99	2B
C100	9B
C102	10B

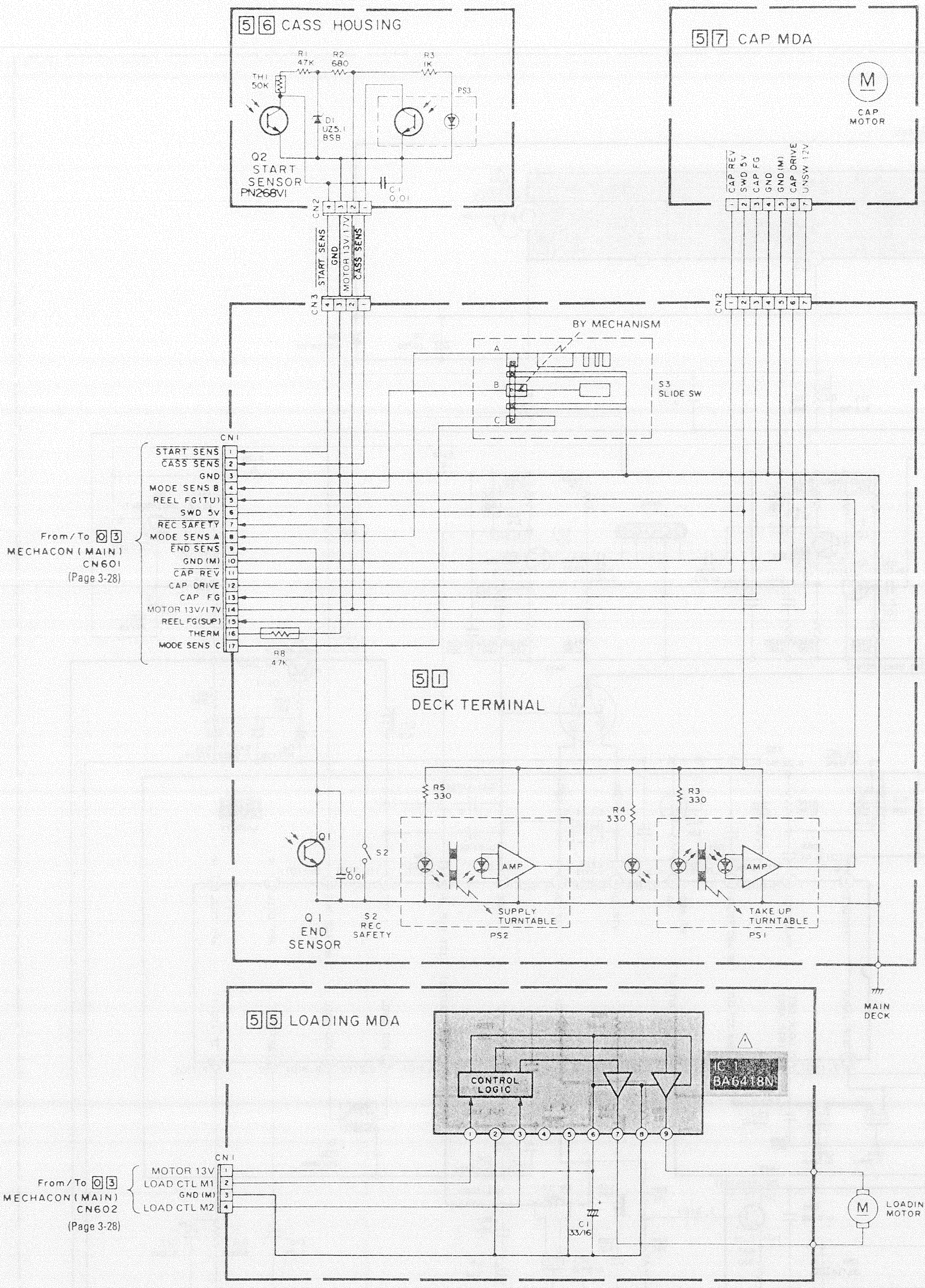
3.19 TERMINAL SCHEMATIC DIAGRAM


JP1
A. INPUT (R)
A. INPUT (L)
GND
A. OUTPUT (R)
A. OUTPUT (L)
RCA
GND
GND
VPT VIDEO IN
GND
UNSW 5V
UNSW 12V
SCL
SDA
REMOTE
From/To 0 3 MAIN (M-CTL) JP1 (Page 3-27)
From 0 3 MAIN (AUDIO CTL) (Page 3-21)
To 0 3 MAIN (MECHACON) JP1 (Page 3-27)
From 0 3 MAIN (REG) JP1 (Page 3-18)
To 0 3 MAIN (M-CTL) JP1 (Page 3-28)
From/To 0 3 MAIN (VIDEO) (Page 3-24)
VIDEO OUT
VIDEO IN
GND
From 0 3 MAIN (REGULATOR) (Page 3-18)
VIDEO
VPT I/O
JA1 AV I/O
V. OUT V. GND
V. IN V. GND
A. IN (L) A. GND A. IN (R)
A. OUT (L) A. OUT (R)
D1 D2 D3 D4
CN1
A. INPUT OUT (L)
A. INPUT OUT (R)
GND
A. OUTPUT IN (L)
A. OUTPUT IN (R)
GND
UNSW 12V
From/To 7 4 AUDIO MAIN CN8 (Page 3-61)
IC1 LA7151
GND VCC NC
JA4 RCA IN (L)
JA5 RCA IN (R)
JA2 RCA OUT (L)
JA3 RCA OUT (R)
R1 270
R2 10K
R3 10K
R4 3.6K
R5 3.6K
R6 39K
R7 39K
R8 18K
R9 18K
R10 10K
R11 10K
R12 270
R13 270
R14 270
R15 270
C1 47/16
C3 10/16
C4 10/16
C7 10/16
C8 10/16
0 6 TERMINAL

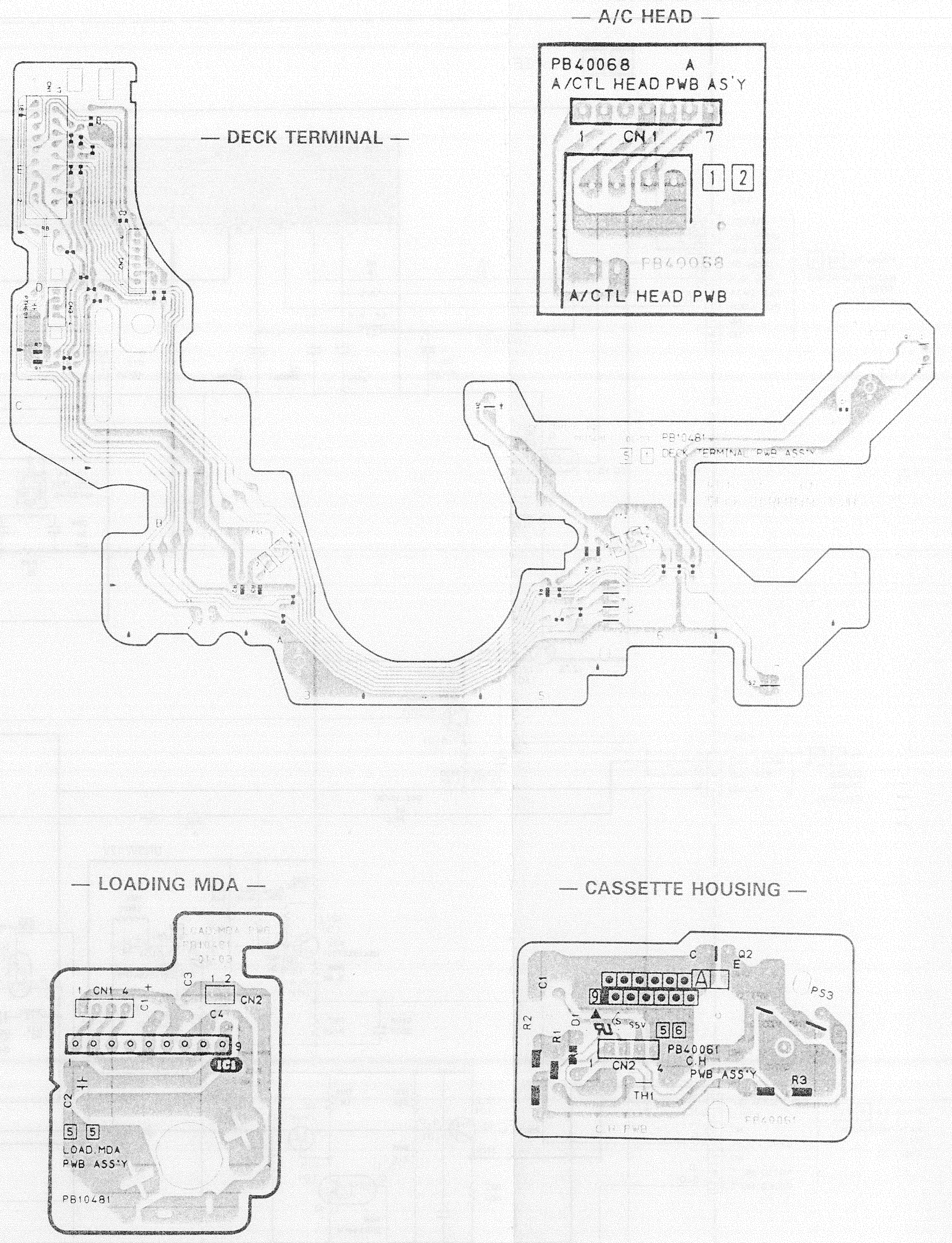
3.20 TERMINAL CIRCUIT BOARD


PB20599 TERMINAL PWB
JP1
J3
R12
R10
R11
R1
IC1
C1
C2
C3
C4
C5
C6
C7
C8
C9
C10
R2
R3
R4
R5
R6
R7
R8
R9
R13
R14
R15
D1
D2
D3
D4
L21
L22
L23
L24
L25
L26
L27
L28
L29
L30
L31
L32
C21
C22
C23
C24
C25
C26
C27
C28
C29
C30
C31
C32
1254 VO
0 6 PB20599
TERMINAL PWB ASS'Y
JA5 A. IN (R)
JA4 A. IN (L)
JA2 A. OUT (L)
JA3 A. OUT (R)
J1
J2
J4
CN1

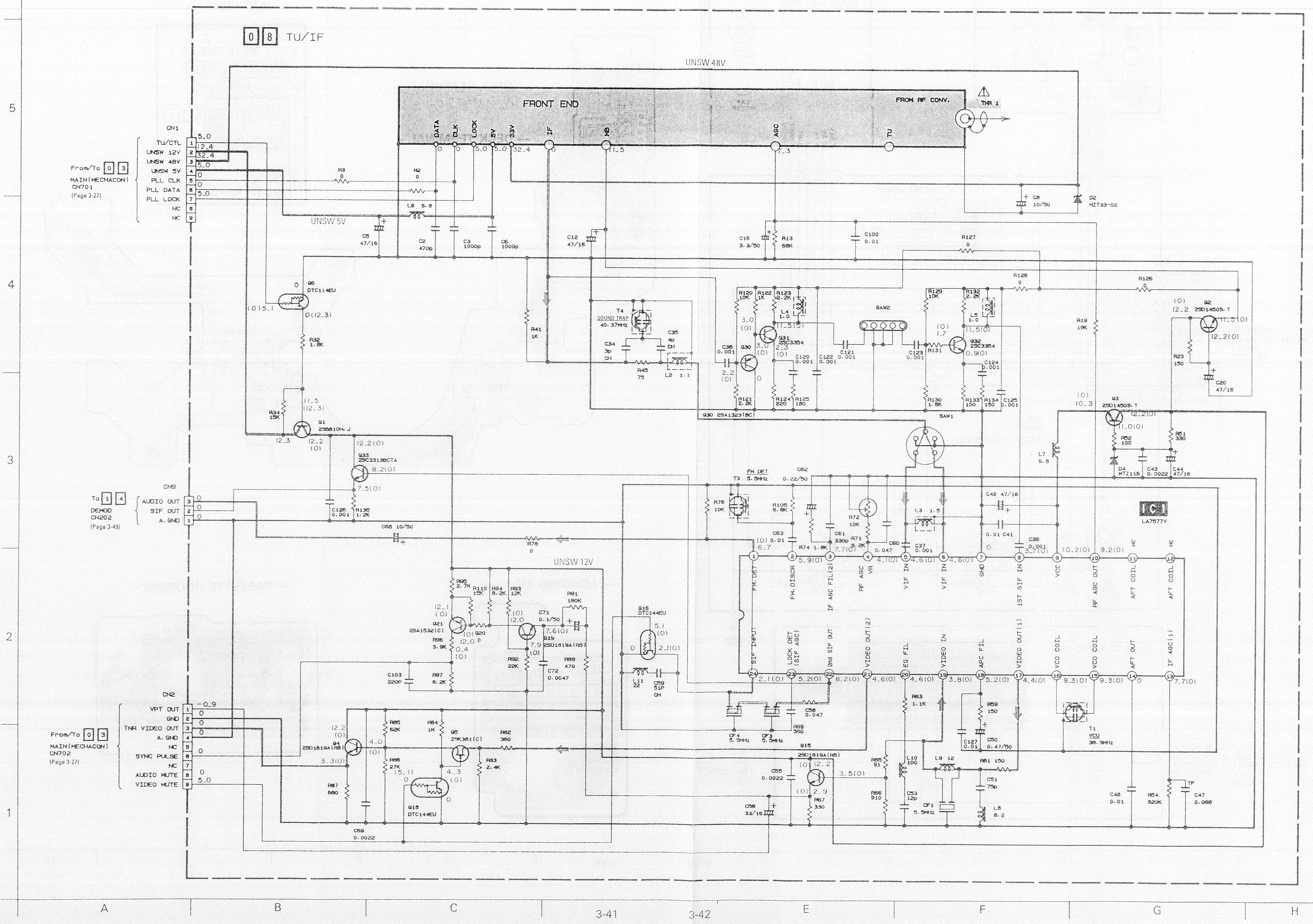
3.21 DECK TERMINAL, LOADING MDA, CAPSTAN MDA AND CASS. HOUSING SCHEMATIC DIAGRAM


56 CASS HOUSING
TH1 50K
R1 47K
R2 680
R3 1K
PS3
D1 UZ5.1 BSB
Q2 START SENSOR PN268VI
C1 0.01
CN2
START SENS
GND
MOTOR 13V/17V
CASS SENS
CN3
57 CAP MDA
M
CAP MOTOR
CAP REV
SWD 5V
CAP FG
GND
GND(M)
CAP DRIVE
UNSW 12V
CN2
BY MECHANISM
A
B
C
S3 SLIDE SW
CN1
START SENS
CASS SENS
GND
MODE SENS B
REEL FG(TU)
SWD 5V
REC SAFETY
MODE SENS A
END SENS
GND (M)
CAP REV
CAP DRIVE
CAP FG
MOTOR 13V/17V
REEL FG(SUP)
THERM
MODE SENS C
From/To 03 MECHACON (MAIN) CN601 (Page 3-28)
R8 4.7k
51 DECK TERMINAL
R5 330
R4 330
R3 330
Q1
C1 0.01
S2
AMP
AMP
Q1 END SENSOR
S2 REC SAFETY
SUPPLY TURNTABLE
PS2
TAKE UP TURNTABLE
PS1
MAIN DECK
55 LOADING MDA
CONTROL LOGIC
IC 1 BA6418N
CN1
MOTOR 13V
LOAD CTL M1
GND (M)
LOAD CTL M2
From/To 03 MECHACON (MAIN) CN602 (Page 3-28)
C1 33/16
M
LOADING MOTOR

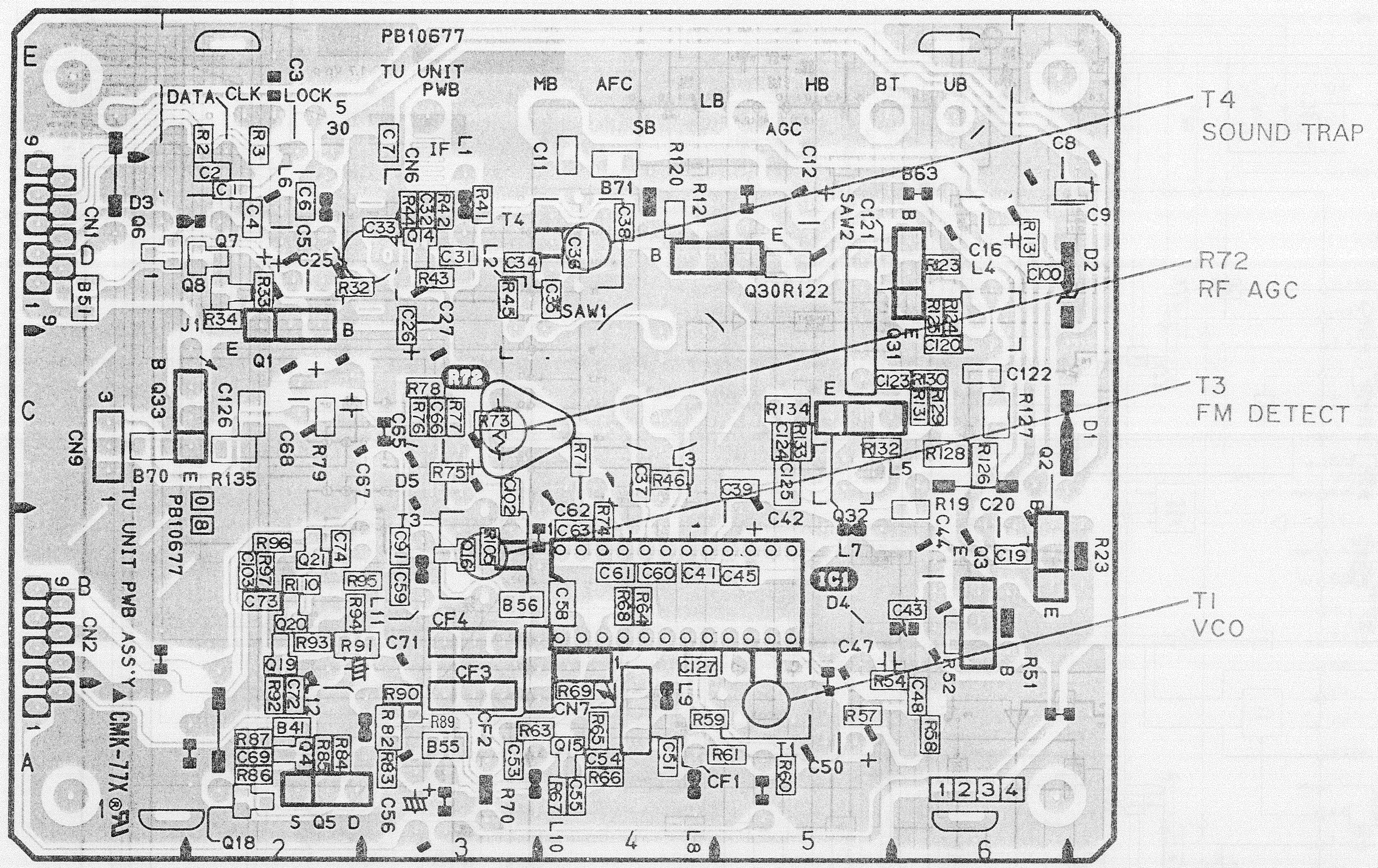
3.22 DECK TERMINAL, LOADING MDA, CASS. HOUSING AND A/C HEAD CIRCUIT BOARD


— A/C HEAD —
PB40068 A
A/CTL HEAD PWB AS'Y
1 CN1 7
12
PB40068
A/CTL HEAD PWB
— DECK TERMINAL —
PB10481
51 DECK TERMINAL PWB ASS'Y
— LOADING MDA —
1 CN1 4
C1
C3
1 2
CN2
C4
9
IC1
C2
55
LOAD.MDA PWB ASS'Y
PB10481
— CASSETTE HOUSING —
C
Q2
E
C1
A
9
PS3
R2
R1
D1
56
PB40061
C.H
PWB ASS'Y
1 CN2 4
TH1
R3

3.23 TUNER SCHEMATIC DIAGRAM


08 TU/IF
UNSW 48V
FRONT END
FROM RF CONV.
TNR 1
DATA
CLK
LOCK
5V
33V
IF
MB
AGC
TU
CN1
TU/CTL
UNSW 12V
UNSW 48V
UNSW 5V
PLL CLK
PLL DATA
PLL LOCK
NC
From/To 03
MAIN(MECHACON)
CN701
(Page 3-27)
UNSW 5V
C5 47/16
L8 6.8
C2 470p
C3 1000p
C6 1000p
C12 47/16
C15 3.3/50
R13 68K
C100 0.01
C8 10/50
D2 HZT33-02
R127 0
R128 0
R126
Q6 DTC114EU
R32 1.8K
R34 15K
Q1 2SB810H·J
Q33 2SC3313BCTA
C126 0.001
R135 1.2K
T4 SOUND TRAP 40.37MHz
C34 3p CH
C35 40 CH
R45 75
L2 1.1
R41 1K
R120 10K
R122 1K
R123 2.2K
L4 1.0
Q31 2SC3354
Q30
C36 0.001
C120 0.001
C122 0.001
C121 0.001
SAW2
C123 0.001
R131
R129 10K
R132 2.2K
L5 1.0
Q32 2SC3354
C124 0.001
R121 2.2K
R124 220
R125 180
R130 1.8K
R133 100
R134 150
C125 0.001
Q30 2SA1323(BC)
SAW1
R19 18K
Q2 2SD1450S·T
R23 150
C20 47/16
Q3 2SD1450S·T
R51 330
R52 100
D4 MTZ11B
C43 0.0022
C44 47/16
L7 6.8
CN9
To 14
DEMOD CN202
(Page 3-49)
AUDIO OUT
SIF OUT
A. GND
C68 10/50
R78 0
FM DET 5.5MHz
T3
C82 0.22/50
R78 10K
R105 6.8K
C63 0.01
C61 330p
R74 1.8K
R72 10K
R71 8.2K
C60 0.047
C37 0.001
L3 1.5
C42 47/16
C41 0.01
C39 0.001
IC1
LA7577V
FM DET
FM DISCRI
IF AGC FIL(2)
RF AGC VR
VIF IN
VIF IN
GND
1ST SIF IN
VCC
RF AGC OUT
AFT COIL
AFT COIL
NC
NC
SIF INPUT
LOCK DET (SIF AGC)
2nd SIF OUT
VIDEO OUT(2)
EQ FIL
VIDEO IN
APC FIL
VIDEO OUT(1)
VCO COIL
VCO COIL
AFT OUT
IF AGC(1)
UNSW 12V
R95 2.7K
R110 15K
R94 8.2K
R93 12K
R91 180K
C71 0.1/50
Q21 2SA1532(C)
Q20
Q19 2SD1819A(RS)
R96 3.9K
R92 22K
R89 470
C72 0.0047
C103 220P
R97 8.2K
Q16 DTC144EU
L11 22
C59 51P CH
CF4 5.5MHz
CF3 5.5MHz
C58 0.047
R69 560
Q15 2SD1819A(RS)
R63 1.1K
R59 150
C127 0.01
C50 0.47/50
T1 VCO 38.9MHz
L10 100
L9 12
R61 150
C51 75p
R65 91
R66 910
C53 12p
CF1 5.5MHz
L8 8.2
C55 0.0022
C56 33/16
R67 330
C48 0.01
R54 820K
TF
C47 0.068
CN2
VPT OUT
GND
TNR VIDEO OUT
A. GND
NC
SYNC PULSE
NC
AUDIO MUTE
VIDEO MUTE
From/To 03
MAIN(MECHACON)
CN702
(Page 3-27)
2SD1819A(RS)
Q1
R85 62K
R84 1M
Q5 2SK381(C)
R82 360
R83 2.4K
R86 27K
R87 680
Q18 DTC144EU
C69 0.0022
A
B
C
D
E
F
G
H
1
2
3
4
5
6

3.24 TUNER CIRCUIT BOARD


PB10677
TU UNIT PWB
DATA
CLK
LOCK
MB
AFC
SB
LB
AGC
HB
BT
UB
IF
CN1
CN2
CN6
CN7
CN9
SAW1
SAW2
IC1
CF1
CF2
CF3
CF4
TU UNIT PWB ASS'Y
CMK-77X
T4
SOUND TRAP
R72
RF AGC
T3
FM DETECT
T1
VCO
A
B
C
D
E
1
2
3
4
5
6

- Location of SMC parts

1D
└── Location

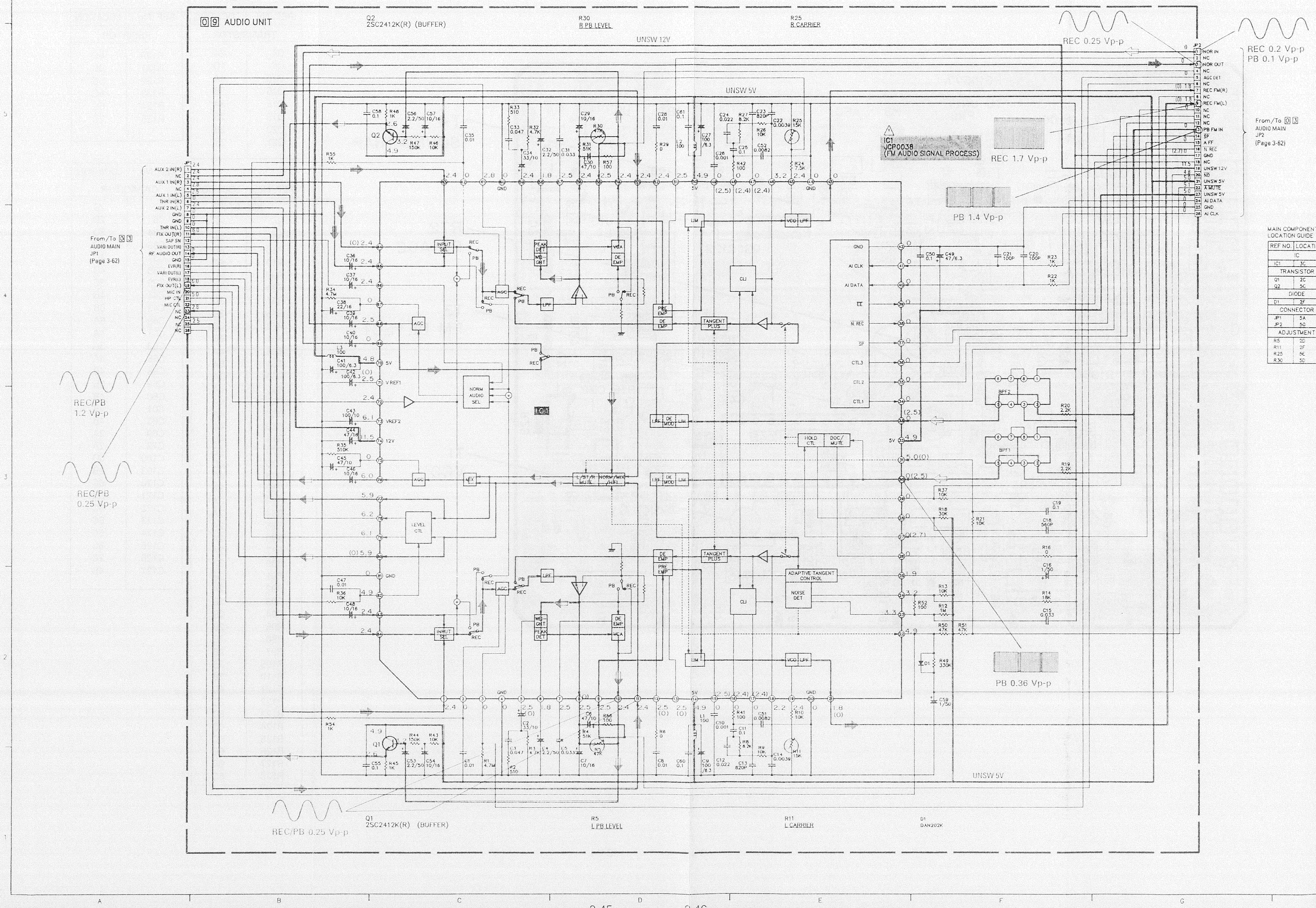
REF. No.	LOCATION
TRANSISTOR	
Q4	2A
Q6	1D
Q15	4A
Q16	3B
Q18	2A
Q19	2B
Q20	2B
Q21	2B

REF. No.	LOCATION
RESISTOR	
R2	2E
R3	2E
R13	6D
R19	6C
R32	2D
R34	2D
R41	3D
R45	3D
R52	6B
R54	5B
R59	4A
R61	5A
R63	3A
R65	4A
R66	4A
R67	4A
R69	4A
R71	4C
R74	4B
R76	3C
R78	3C
R82	3A
R83	3A
R84	2A
R85	2A
R86	2A
R87	2A
R89	3A
R91	2B
R92	2A
R93	2B
R94	2B
R95	2B
R96	2B
R97	2B
R105	3B
R110	2B
R121	4D
R122	5D
R123	6D
R124	6D
R125	6D
R126	6C
R127	6C
R128	6C

REF. No.	LOCATION
RESISTOR	
R129	6C
R131	6C
R132	5C
R133	5C
R134	5C
R135	2C

REF. No.	LOCATION
CAPACITOR	
C2	2D
C6	2D
C34	3D
C35	4D
C37	4C
C38	4D
C39	5C
C41	4B
C43	6B
C48	6A
C51	4A
C53	3A
C55	4A
C58	4B
C59	3B
C60	4B
C61	4B
C63	4B
C69	2A
C72	2A
C100	6D
C103	2B
C120	6C
C121	5D
C122	6C
C123	5C
C124	5C
C125	5C
C126	2C
C127	4B

3.25 AUDIO UNIT SCHEMATIC DIAGRAM


09 AUDIO UNIT
Q2
2SC2412K(R) (BUFFER)
R30
R PB LEVEL
R25
R CARRIER
UNSW 12V
UNSW 5V
REC 0.25 Vp-p
REC 0.2 Vp-p
PB 0.1 Vp-p
IC1
JCP0038
(FM AUDIO SIGNAL PROCESS)
REC 1.7 Vp-p
PB 1.4 Vp-p
PB 0.36 Vp-p
From/To 03
AUDIO MAIN
JP1
(Page 3-62)
From/To 03
AUDIO MAIN
JP2
(Page 3-62)
JP1
AUX 2 IN(R)
NC
AUX 1 IN(R)
NC
AUX 1 IN(L)
TNR IN(R)
AUX 2 IN(L)
GND
GND
TNR IN(L)
FIX OUT(R)
SAP SN
VARI OUT(R)
RF AUDIO OUT
GND
EVR(R)
VARI OUT(L)
EVR(L)
FIX OUT(L)
MIC IN
HP CTL
MIC CTL
NC
NC
NC
NC
JP2
NOR IN
NC
NOR OUT
NC
AGC DET
NC
REC FM(R)
NC
REC FM(L)
NC
NC
NC
PB FM IN
SP
A FF
N REC
GND
NC
UNSW 12V
ND
UNSW 5V
A MUTE
UNSW 5V
AI DATA
GND
AI CLK
REC/PB
1.2 Vp-p
REC/PB
0.25 Vp-p
REC/PB 0.25 Vp-p
Q1
2SC2412K(R) (BUFFER)
R5
L PB LEVEL
R11
L CARRIER
D1
DAN202K
INPUT SEL
AGC
LPF
PEAK DET
WG GNT
VCA
DE EMP
PRE EMP
LIM
VCO
CLI
TANGENT PLUS
NORM AUDIO SEL
LEVEL CTL
MIX
L/ST/R MUTE
NORM/MIX MUTE
DE MOD
HOLD CTL
DOC/MUTE
ADAPTIVE TANGENT CONTROL
NOISE DET
BPF1
BPF2
GND
AI CLK
AI DATA
EE
N REC
SP
CTL3
CTL2
CTL1
V REF1
VREF2
12V
5V
A
B
C
D
E
F
G
H
1
2
3
4
5

MAIN COMPONENT PARTS LOCATION GUIDE

REF NO.	LOCATION
IC	
IC1	3C
TRANSISTOR	
Q1	2C
Q2	5C
DIODE	
D1	2F
CONNECTOR	
JP1	5A
JP2	5G
ADJUSTMENT	
R5	2D
R11	2F
R25	5E
R30	5D

3.26 AUDIO UNIT CIRCUIT BOARD

MAIN COMPONENT PARTS LOCATION GUIDE < AUDIO UNIT >

REF. No.	LOCATION
IC	
IC1	A-3B

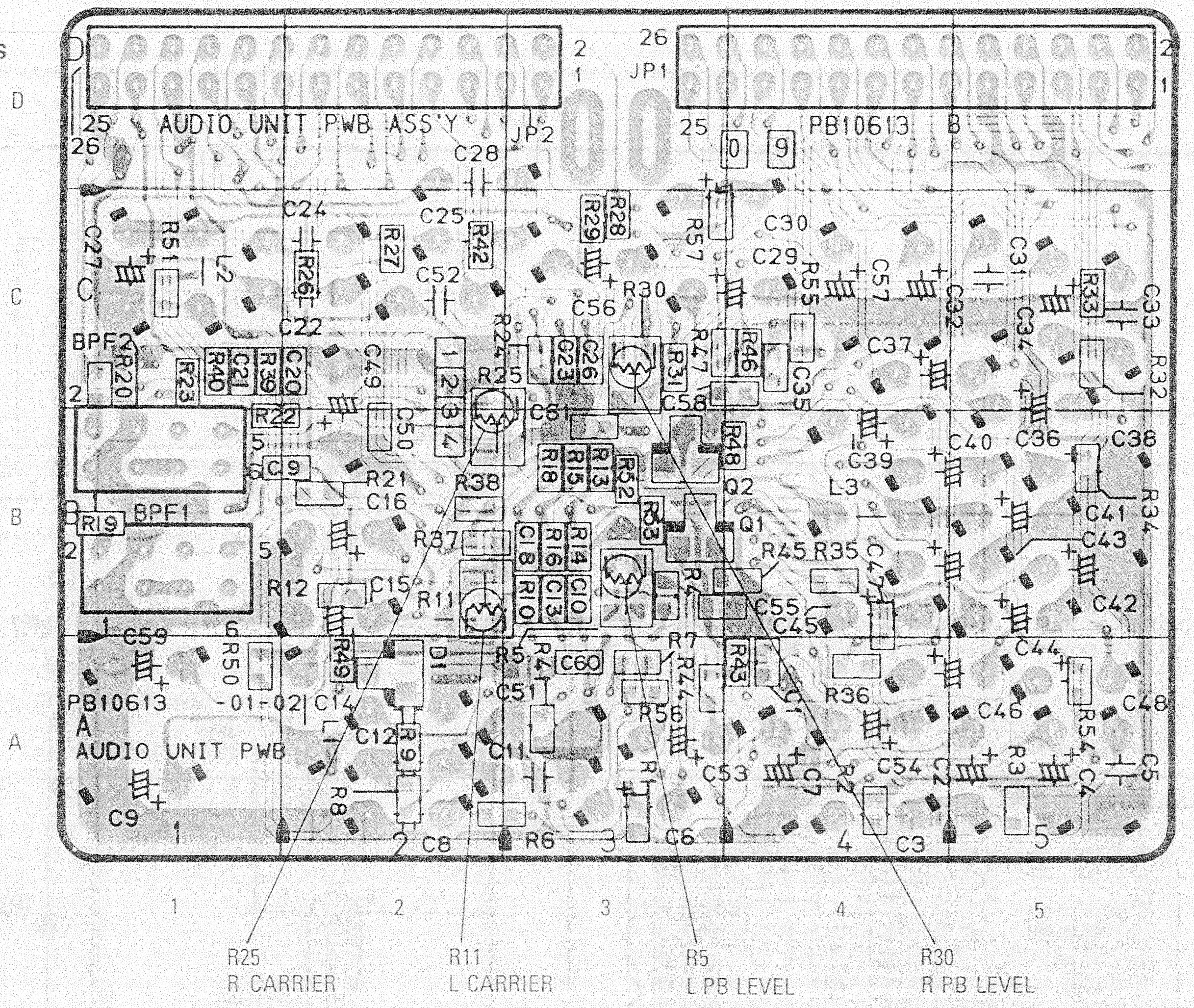
REF. No.	LOCATION
TRANSISTOR	
Q1	B-3B
Q2	B-3B

REF. No.	LOCATION
DIODE	
D1	B-2A

REF. No.	LOCATION
CONNECTOR	
JP1	B-2D
JP2	B-4D

REF. No.	LOCATION
ADJUSTMENT	
R5	B-3B
R11	B-2B
R25	B-2C
R30	B-3C

— CONDUCTOR SIDE —
(B)



D
C
B
A
1
2
3
4
5
AUDIO UNIT PWB ASS'Y
PB10613 B
PB10613 -01-02
A
AUDIO UNIT PWB
JP1
JP2
BPF1
BPF2
IC1
R25
R CARRIER
R11
L CARRIER
R5
L PB LEVEL
R30
R PB LEVEL

• Location of SMC parts

A-1D
Location
A : COMPONENT SIDE
B : CONDUCTOR SIDE

LEADLESS COMPONENT PARTS LOCATION GUIDE < AUDIO UNIT >

REF. No.	LOCATION
IC	
IC1	A-3B

REF. No.	LOCATION
TRANSISTOR	
Q1	B-3B
Q2	B-3B

REF. No.	LOCATION
DIODE	
D1	B-2A

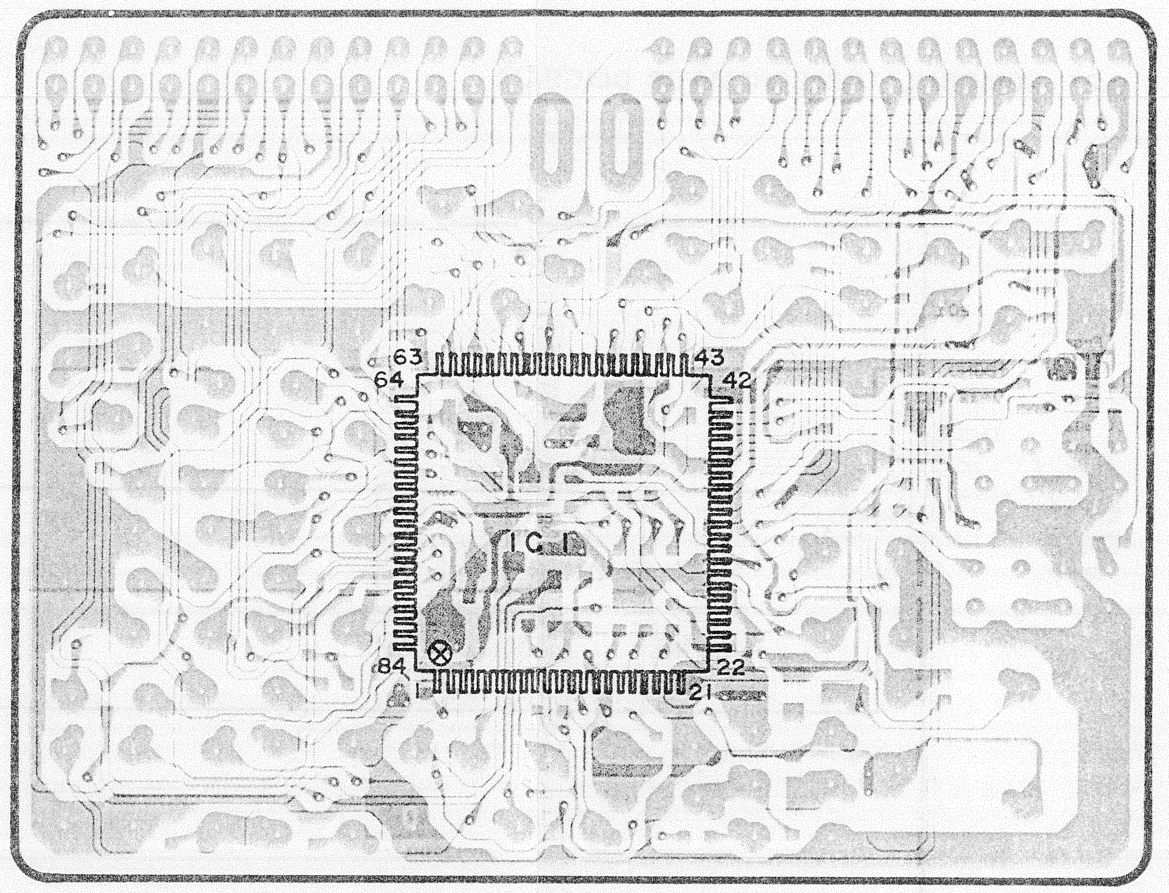
REF. No.	LOCATION
RESISTOR	
R1	B-3A
R2	B-4A
R3	B-5A
R4	B-3B
R5	B-3B
R6	B-3A
R8	B-2A
R9	B-2A
R10	B-3B
R11	B-2B
R12	B-2B
R13	B-3B
R14	B-3B
R16	B-3B
R18	B-3B
R19	B-1B
R20	B-1C

REF. No.	LOCATION
RESISTOR	
R21	B-2B
R22	B-1B
R23	B-1C
R24	B-3C
R25	B-2C
R26	B-2C
R27	B-2C
R29	B-3C
R30	B-3C
R31	B-3C
R32	B-5C
R33	B-5C
R34	B-5B
R35	B-4B
R36	B-4A
R37	B-2B
R41	B-3A

REF. No.	LOCATION
RESISTOR	
R42	B-2C
R43	B-4A
R44	B-3A
R45	B-4B
R46	B-4C
R47	B-3C
R48	B-4B
R49	B-2A
R50	B-1A
R51	B-1C
R52	B-3B
R54	B-5A
R55	B-4C
R56	B-3A
R57	B-3C

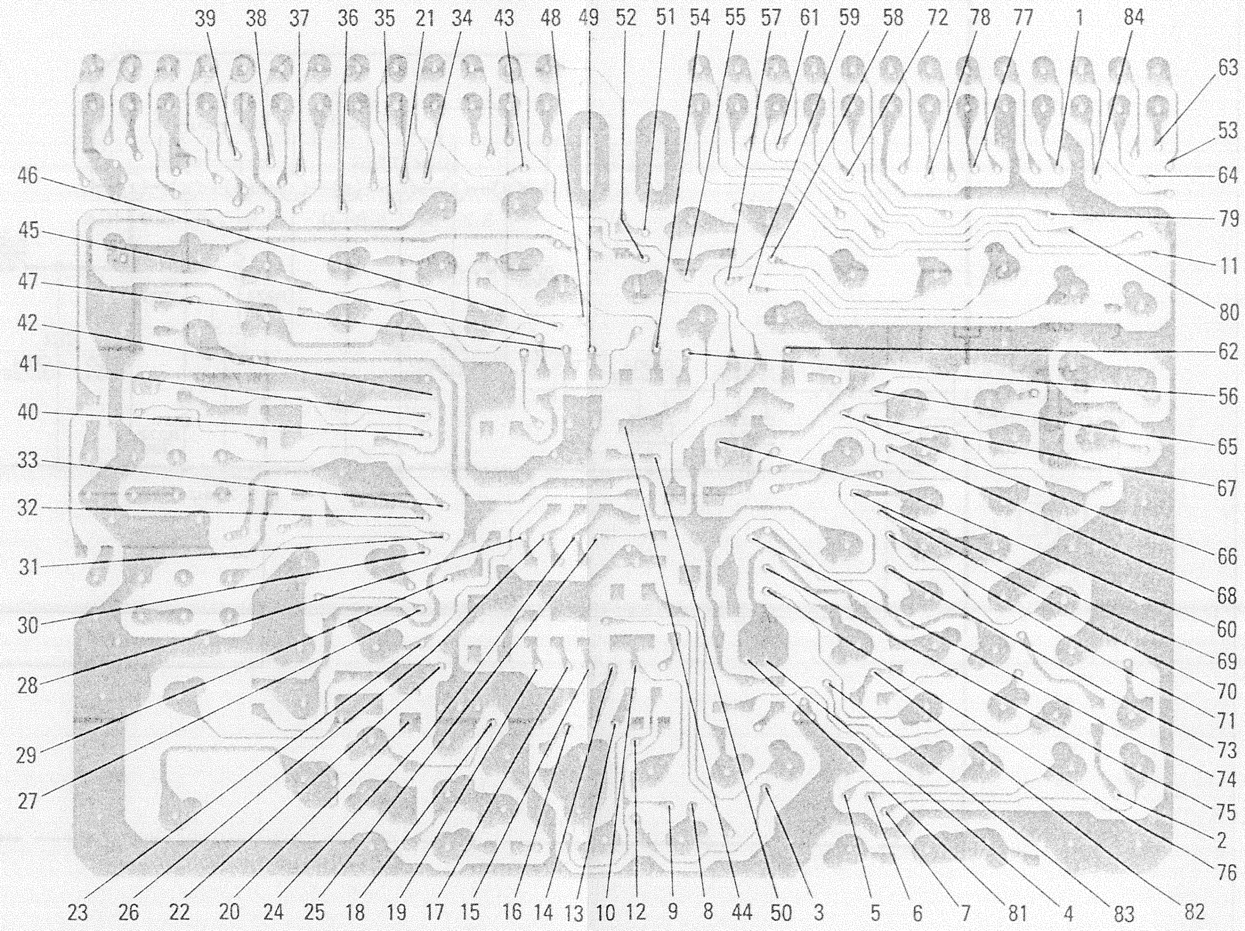
REF. No.	LOCATION
CAPACITOR	
C1	B-4A
C10	B-3B
C13	B-3B
C18	B-3B
C19	B-2B
C20	B-2C
C21	B-1C
C23	B-3C
C26	B-3C
C35	B-4C
C47	B-4B
C50	B-2B
C55	B-4B
C58	B-3C
C60	B-3A
C61	B-3B

— COMPONENT SIDE —
(A)



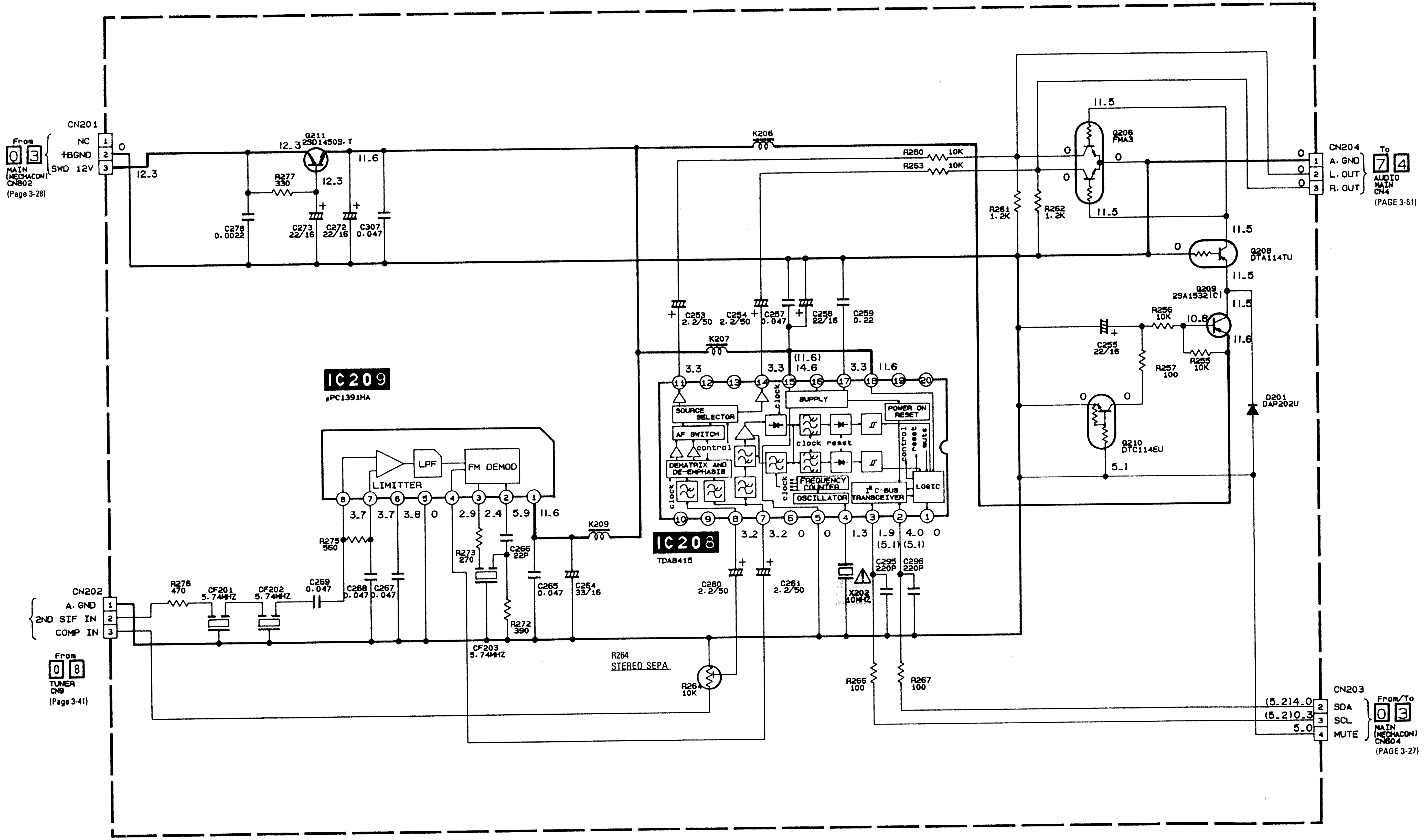
IC 1
63
64
43
42
84
22
21

— IC PIN NUMBER LOCATION —



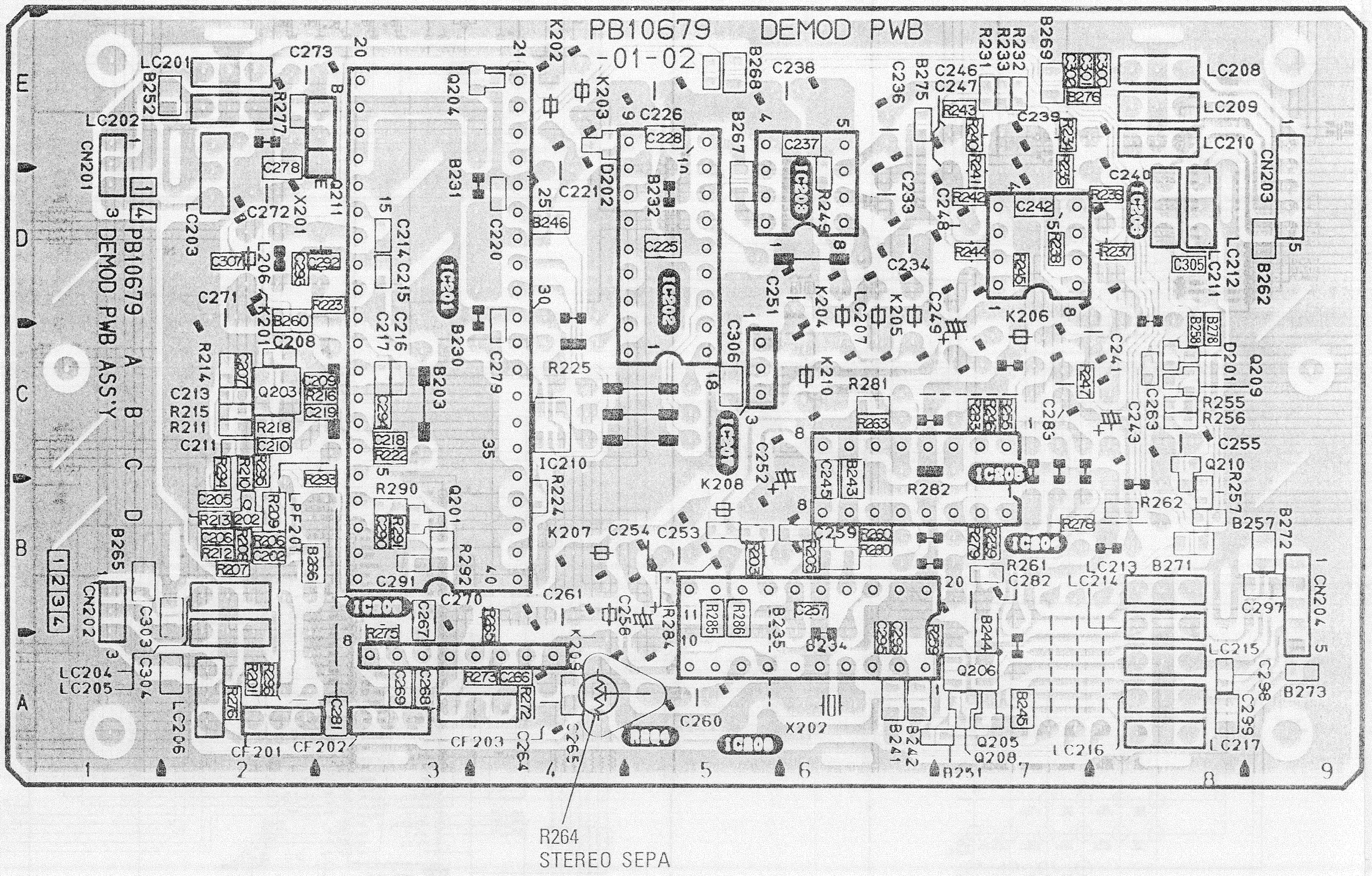
39 38 37 36 35 21 34 43 48 49 52 51 54 55 57 61 59 58 72 78 77 1 84
63
53
64
79
11
80
62
56
65
67
66
68
60
69
70
71
73
74
75
2
76
46
45
47
42
41
40
33
32
31
30
28
29
27
23 26 22 20 24 25 18 19 17 15 16 14 13 10 12 9 8 44 50 3 5 6 7 81 4 83 82

3.27 DEMODULATOR SCHEMATIC DIAGRAM



From 03 MAIN (MECHACON) CN802 (Page 3-28)
CN201
NC
+BGND
SWD 12V
Q211 2SD1450S.T
R277 330
C278 0.0022
C273 22/16
C272 22/16
C307 0.047
12.3
11.6
K206
R260 10K
R263 10K
R261 1.2K
R262 1.2K
Q206 FMA3
11.5
CN204
A. GND
L. OUT
R. OUT
To 74 AUDIO MAIN CN4 (PAGE 3-61)
Q208 DTA114TU
Q209 2SA1532(C)
R256 10K
R255 10K
R257 100
C255 22/16
10.8
11.6
D201 DAP202U
Q210 DTC114EU
5.1
C253 2.2/50
C254 2.2/50
C257 0.047
C258 22/16
C259 0.22
K207
(11.6)
14.6
3.3
IC208 TDA8415
SOURCE SELECTOR
AF SWITCH
control
DEMATRIX AND DE-EMPHASIS
SUPPLY
POWER ON RESET
clock
reset
mute
FREQUENCY COUNTER
OSCILLATOR
I²C-BUS TRANSCEIVER
LOGIC
IC209 μPC1391HA
LIMITTER
LPF
FM DEMOD
3.7
3.8
2.9
2.4
5.9
K209
R275 560
R273 270
C266 22P
C268 0.047
C267 0.047
C265 0.047
C264 33/16
R272 390
CF203 5.74MHZ
CN202
A. GND
2ND SIF IN
COMP IN
R276 470
CF201 5.74MHZ
CF202 5.74MHZ
C269 0.047
From 08 TUNER CN9 (Page 3-41)
C260 2.2/50
C261 2.2/50
X202 10MHZ
C295 220P
C296 220P
3.2
3.2
1.3
1.9 (5.1)
4.0 (5.1)
R264 STEREO SEPA
R264 10K
R266 100
R267 100
CN203
SDA
SCL
MUTE
(5.2)4.0
(5.2)0.3
5.0
From/To 03 MAIN (MECHACON) CN604 (PAGE 3-27)

3.28 DEMODULATOR CIRCUIT BOARD



PB10679 DEMOD PWB
-01-02
PB10679
DEMOD PWB ASS'Y
R264
STEREO SEPA

• Location of SMC parts

1D — Location

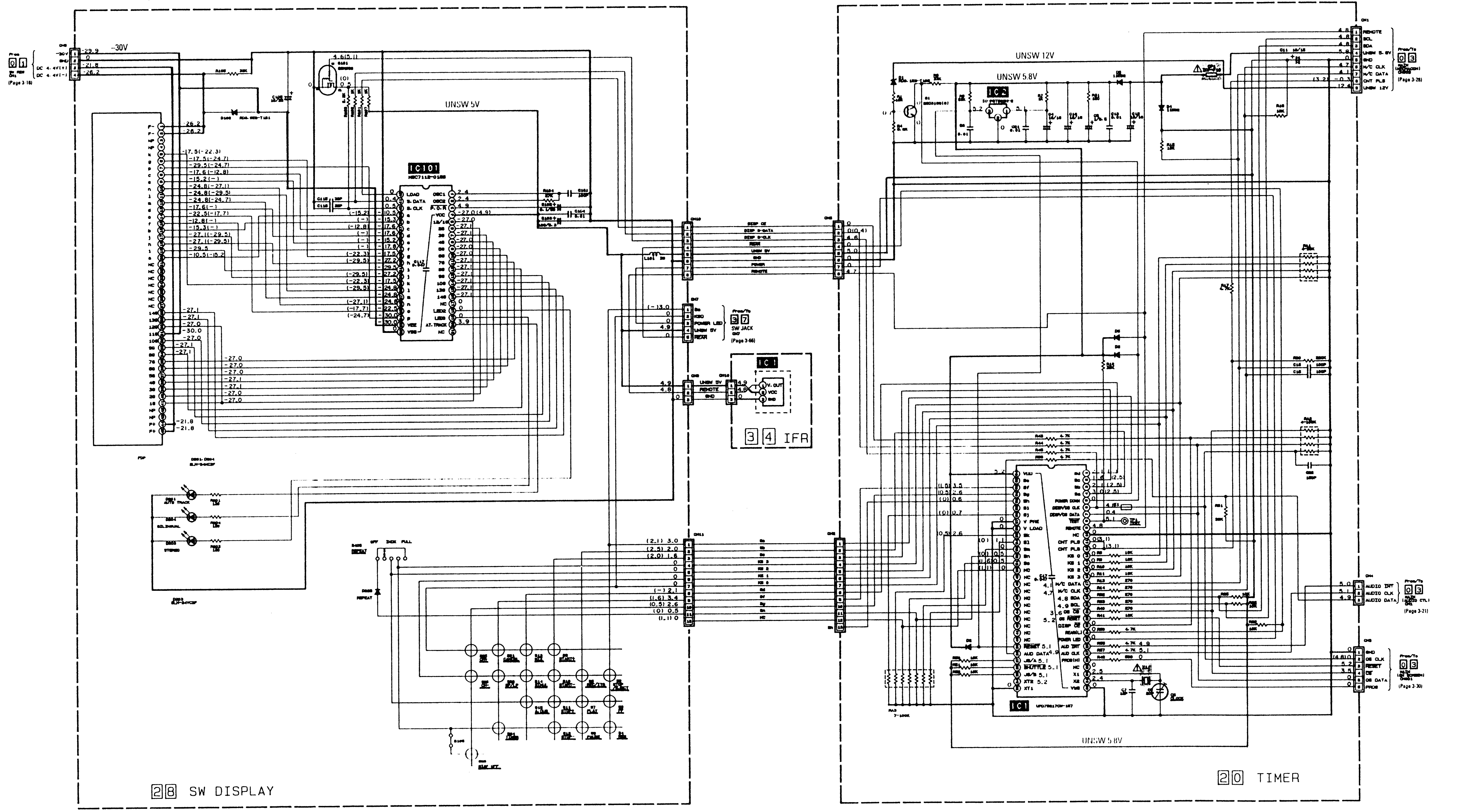
REF. No.	LOCATION
TRANSISTOR	
Q206	7A
Q208	7A
Q209	8C
Q210	8C

REF. No.	LOCATION
DIODE	
D201	8C

REF. No.	LOCATION
RESISTOR	
R255	8C
R256	8C
R257	8B
R260	6B
R261	7B
R262	8B
R263	6C
R272	4A
R273	4A
R275	3B
R276	2A
R277	2E
B276	7E

REF. No.	LOCATION
CAPACITOR	
C257	6B
C259	6B
C265	4A
C266	4A
C267	3B
C268	3A
C269	3A
C278	2E
C295	6A
C296	6A
C307	2D

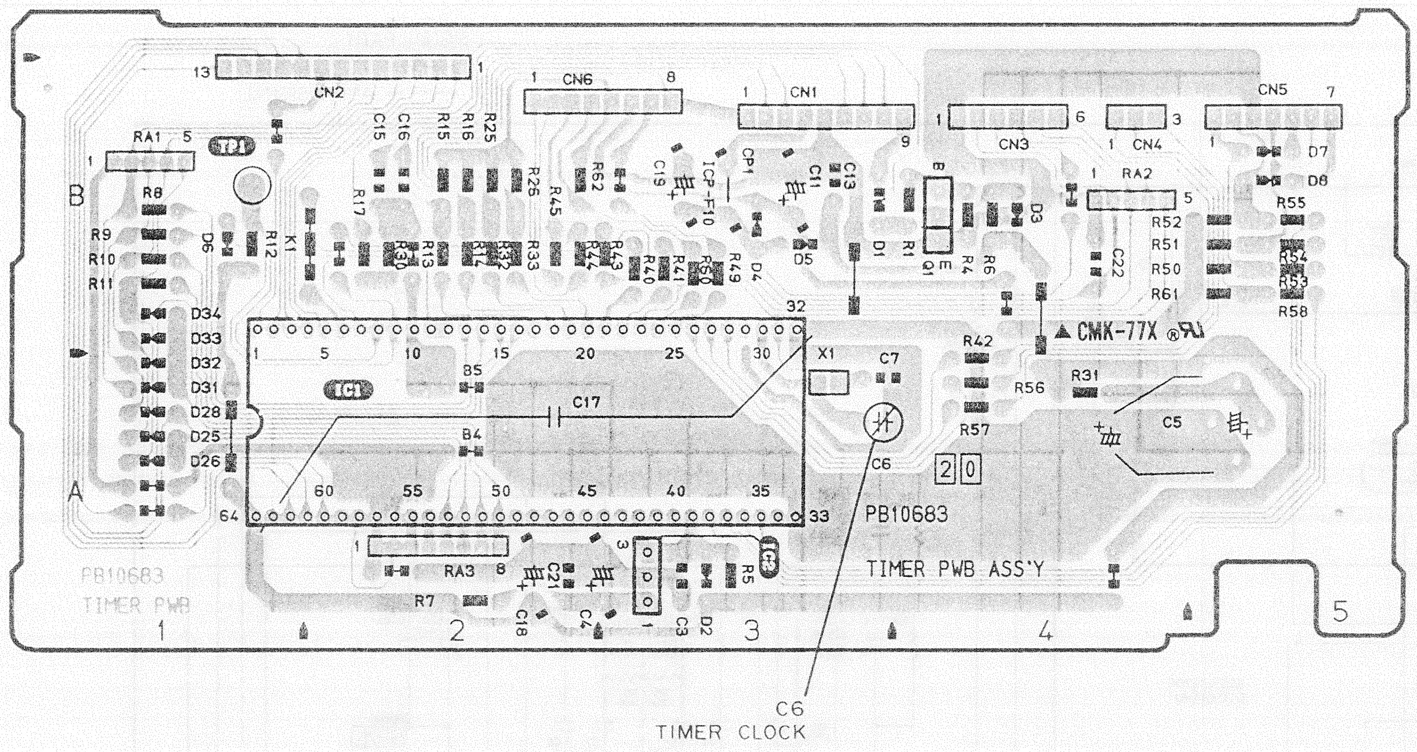
3.29 TIMER, SW/DISPLAY & IFR SCHEMATIC DIAGRAM


-30V
UNSW 5V
IC101
IC1
34 IFR
SW JACK
28 SW DISPLAY
UNSW 12V
UNSW 5.8V
IC2
IC1
UNSW 5.8V
20 TIMER
REMOTE
SCL
SDA
UNSW 5.8V
GND
H/C CLK
H/C DATA
CNT PLS
UNSW 12V
AUDIO INT
AUDIO CLK
AUDIO DATA
GND
OS CLK
RESET
CE
OS DATA
PROG
DISP CE
DISP S-DATA
DISP S-CLK
REAR
UNSW 5V
GND
POWER
REMOTE
KEO
POWER LED
UNSW 5V
REAR
V. OUT
VCC
GND
LOAD
S. DATA
S. CLK
OSC1
OSC2
F. O. R
VCC
VEE
VSS
AT. TRACK

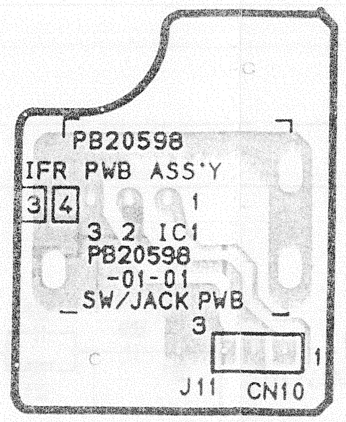
6
5
4
3
2
1
A
B
C
E
F
G
H

3.30 TIMER, SW/DISPLAY & IFR CIRCUIT BOARDS

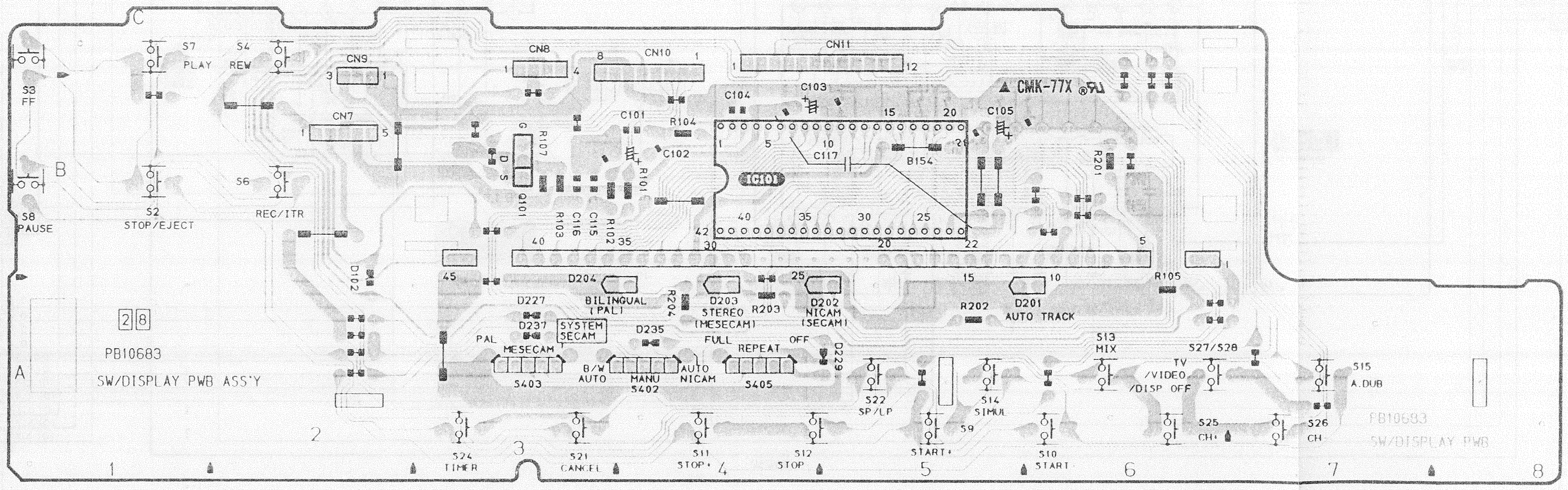
— TIMER —


CN2
CN6
CN1
CN3
CN4
CN5
RA1
RA2
RA3
IC1
IC2
X1
C6
C7
C17
C5
R42
R56
R57
R31
B4
B5
D34
D33
D32
D31
D28
D25
D26
D7
D8
R55
R52
R51
R50
R61
R58
▲ CMK-77X
PB10683
TIMER PWB ASS'Y
PB10683
TIMER PWB
C6
TIMER CLOCK

— IFR —

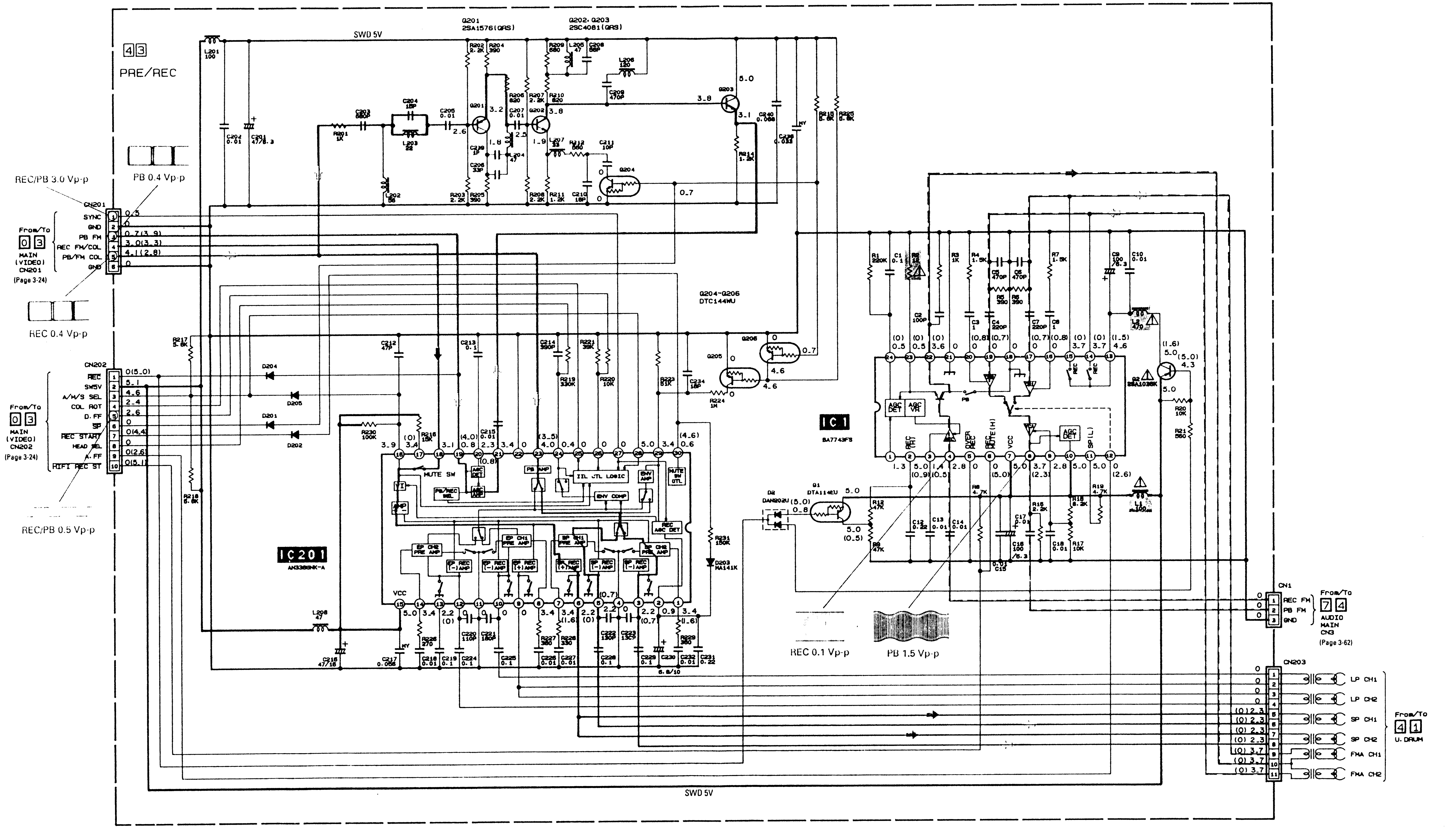

PB20598
IFR PWB ASS'Y
3 4
3 2 IC1
PB20598
-01-01
SW/JACK PWB
J11 CN10

— SW/DISPLAY —


S7 PLAY
S4 REW
S3 FF
S8 PAUSE
S2 STOP/EJECT
S6 REC/ITR
CN9
CN8
CN10
CN11
CN7
▲ CMK-77X
C103
C104
C105
C101
C102
R104
C117
B154
IC101
Q101
R201
D204 BILINGUAL (PAL)
D203 STEREO (MESECAM)
D202 NICAM (SECAM)
D201 AUTO TRACK
D227
D237 SYSTEM SECAM
D235
D229
PAL MESECAM
S403
B/W AUTO
MANU
AUTO NICAM
S402
FULL
REPEAT
OFF
S405
S13 MIX
S27/S28
TV /VIDEO /DISP OFF
S15 A.DUB
S22 SP/LP
S14 SIMUL
S24 TIMER
S21 CANCEL
S11 STOP+
S12 STOP
S9 START+
S10 START
S25 CH+
S26 CH-
PB10683
SW/DISPLAY PWB ASS'Y
PB10693
SW/DISPLAY PWB

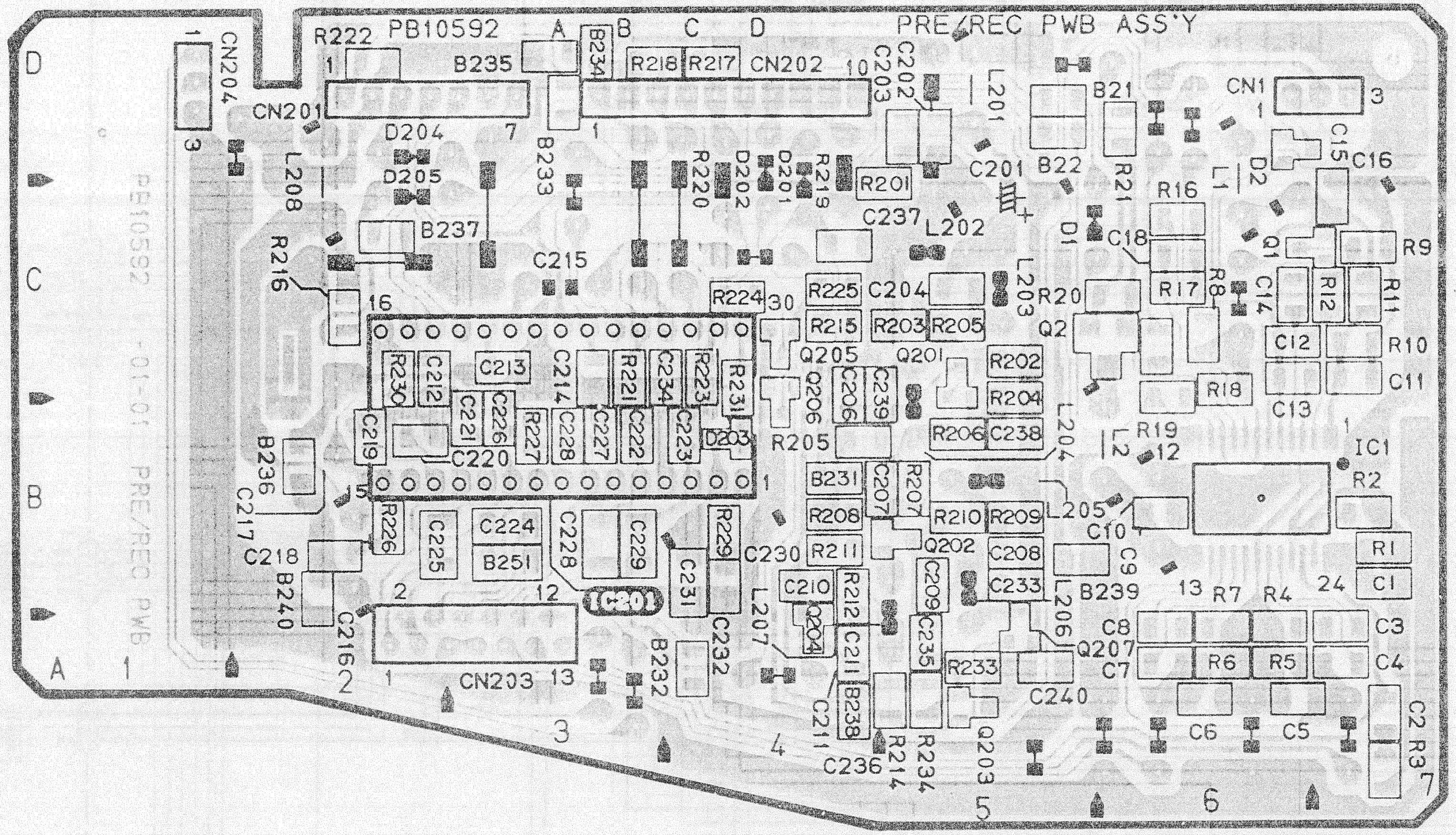
3.31 PRE/REC SCHEMATIC DIAGRAM

• SIGNAL PATH
——— VIDEO SIGNAL
– – – AUDIO SIGNAL



43
PRE/REC
SWD 5V
Q201 2SA1576(QRS)
Q202, Q203 2SC4081(QRS)
Q204–Q206 DTC144WU
REC/PB 3.0 Vp-p
PB 0.4 Vp-p
REC 0.4 Vp-p
REC/PB 0.5 Vp-p
CN201
SYNC
GND
PB FM
REC FM/COL
PB/FM COL
GND
From/To 03 MAIN (VIDEO) CN201 (Page 3-24)
CN202
REC
SW5V
A/H/S SEL
COL ROT
D. FF
SP
REC START
HEAD SEL
A. FF
HIFI REC ST
From/To 03 MAIN (VIDEO) CN202 (Page 3-24)
IC201 AN3389NK-A
IC1 BA7743FS
MUTE SW
PB/REC SEL
ABC DET
PB AMP
IIL CTL LOGIC
ENV AMP
ENV COMP
MUTE SW CTL
REC ABC DET
EP CH2 PRE AMP
EP CH1 PRE AMP
SP CH1 PRE AMP
SP CH2 PRE AMP
VCC
D201
D202
D203 MA141K
D204
D205
Q1 DTA114EU
Q2 2SA1036K
D2 DAN202U
REC 0.1 Vp-p
PB 1.5 Vp-p
CN1
REC FM
PB FM
GND
From/To 74 AUDIO MAIN CN3 (Page 3-62)
CN203
LP CH1
LP CH2
SP CH1
SP CH2
FMA CH1
FMA CH2
From/To 41 U. DRUM

3.32 PRE/REC CIRCUIT BOARD



PB10592
PRE/REC PWB ASS'Y
A
B
C
D
1
2
3
4
5
6
7
CN201
CN202
CN203
CN204
CN1
IC1
IC201
Q1
Q2
Q201
Q202
Q203
Q204
Q205
Q206
Q207
D1
D2
D201
D202
D203
D204
D205
L1
L2
L201
L202
L203
L204
L205
L206
L207
L208
R1
R2
R3
R4
R5
R6
R7
R8
R9
R10
R11
R12
R16
R17
R18
R19
R20
R21
R201
R202
R203
R204
R205
R206
R207
R208
R209
R210
R211
R212
R214
R215
R216
R217
R218
R219
R220
R221
R222
R223
R224
R225
R226
R227
R228
R229
R230
R231
R233
R234
C1
C2
C3
C4
C5
C6
C7
C8
C9
C10
C11
C12
C13
C14
C15
C16
C18
C201
C202
C203
C204
C205
C206
C207
C208
C209
C210
C211
C212
C213
C214
C215
C216
C217
C218
C219
C220
C221
C222
C223
C224
C225
C226
C227
C228
C229
C230
C231
C232
C233
C234
C235
C236
C237
C238
C239
C240
B21
B22
B231
B232
B233
B234
B235
B236
B237
B238
B239
B240
B251

• Location of SMC parts

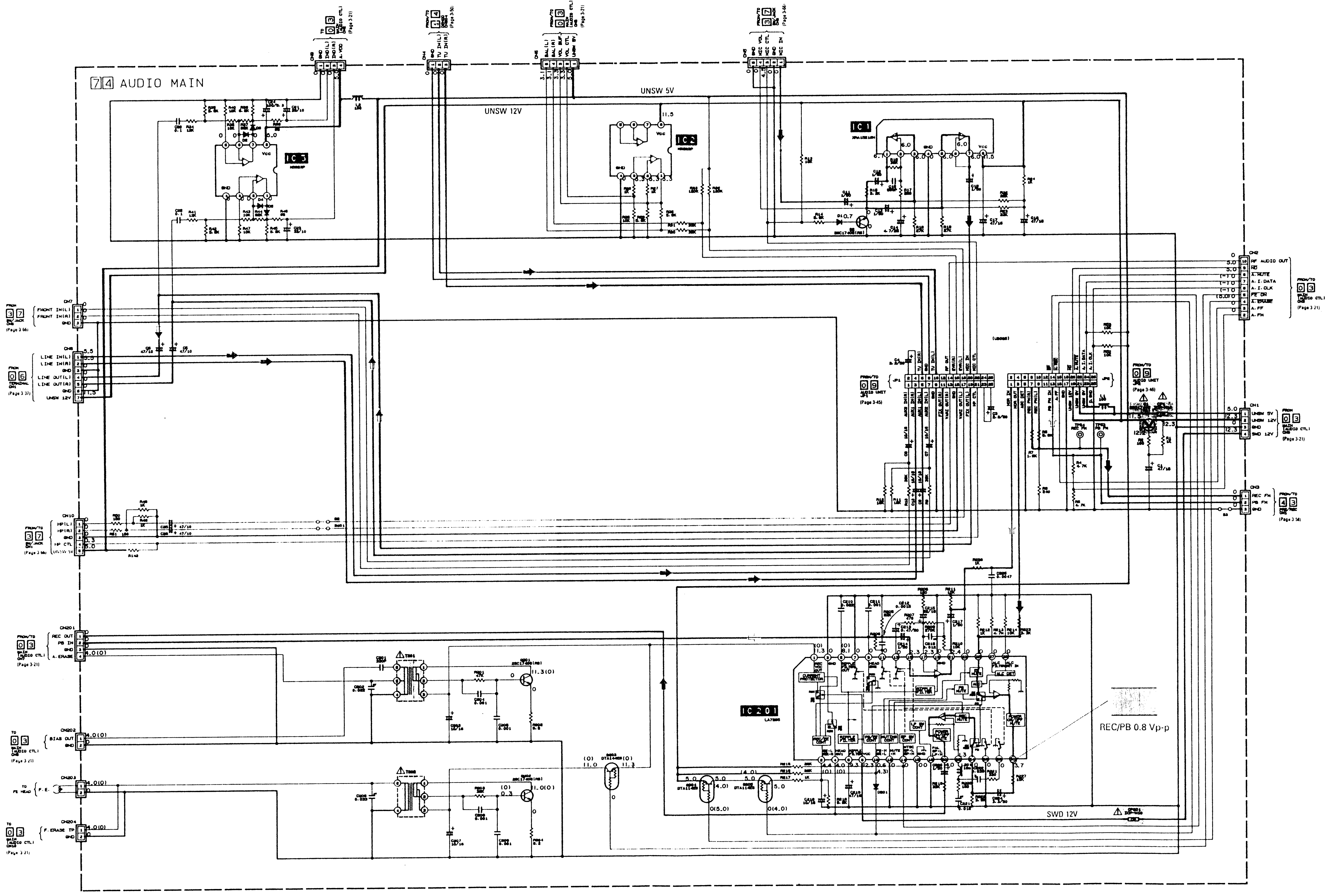
1D
└── Location

REF No.	LOCATION
IC	
IC1	1B
TRANSISTOR	
Q1	6C
Q2	5C
DIODE	
D2	6D
RESISTOR	
R1	7B
R2	7B
R3	7A
R4	6B
R5	6A
R6	6A
R7	6B
R8	6C
R9	7C
R12	7C
R16	6C
R17	6C
R18	6C
R19	6C
R20	6C
R21	6D
CAPACITOR	
C1	7B
C2	7A
C3	7A
C4	7A
C5	6A
C6	6A
C7	6A
C8	6A
C10	6B
C12	6C
C13	6C
C14	6C
C15	7D
C17	6C
C18	6C

REF No.	LOCATION
TRANSISSOR	
Q201	5C
Q202	5B
Q203	5A
Q204	4A
Q205	4C
Q206	4C
DIODE	
D203	4B
RESISTOR	
R201	5C
R202	5C
R203	5C
R204	5C
R205	4B
R206	5B
R207	5B
R208	4B
R209	5B
R210	5B
R211	4B
R212	4B
R214	5A
R215	4C
R216	2C
R217	4D
R218	4D
R221	3C
R222	2D
R223	4C
R224	4C
R225	4C
R226	2B
R227	3B
R228	3B
R229	4B
R230	2C
R231	4C

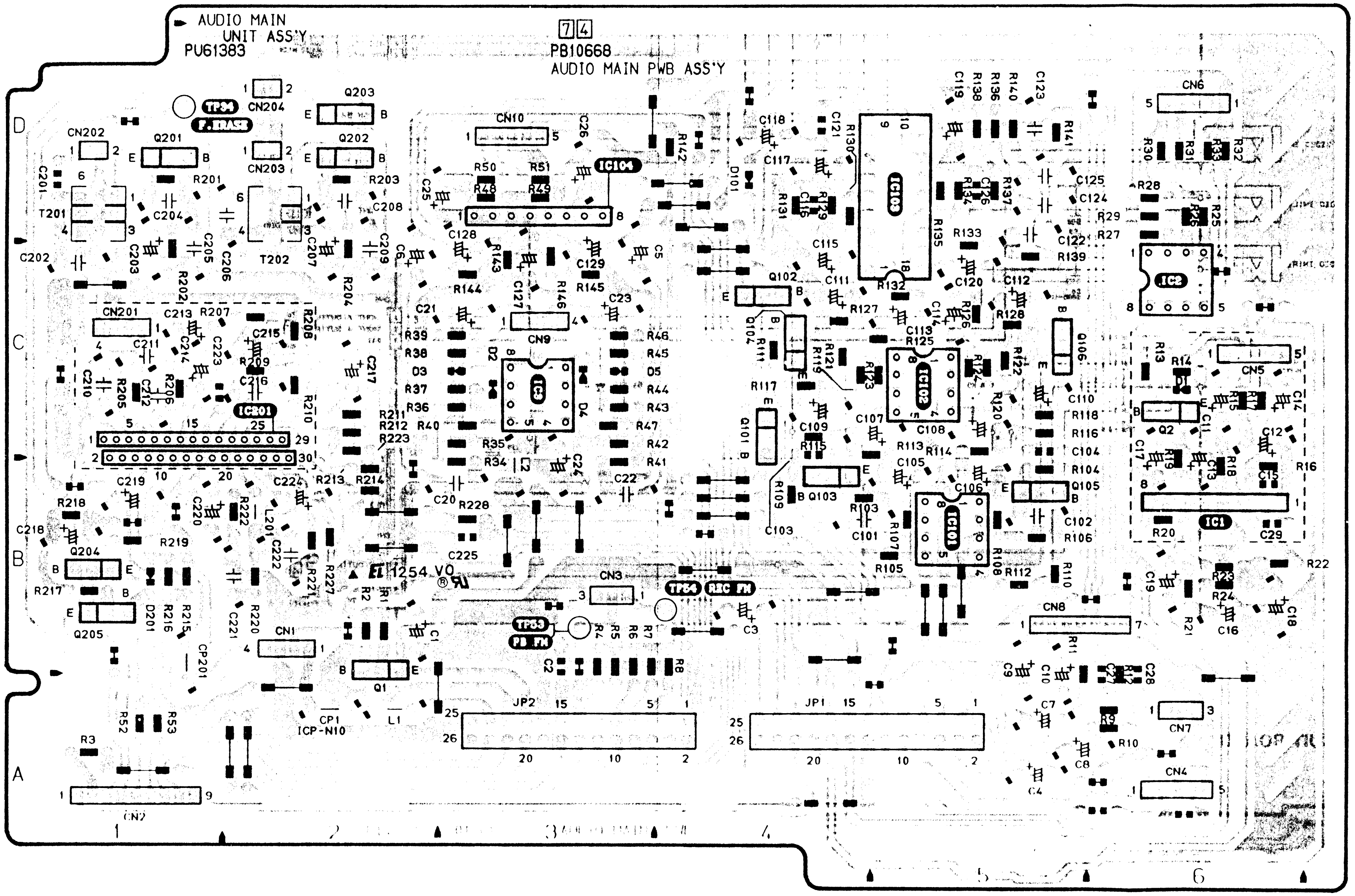
REF No.	LOCATION
CAPACITOR	
C202	5D
C203	5D
C204	5C
C205	5C
C206	4C
C207	5B
C208	5B
C209	5B
C210	4B
C211	4A
C212	2C
C213	3C
C214	3C
C218	2B
C219	2B
C220	3B
C221	3B
C222	3B
C223	4B
C224	3B
C225	2B
C226	3B
C227	3B
C228	3B
C229	3B
C231	4B
C232	4A
C234	4C
C240	5A

3.33 AUDIO MAIN SCHEMATIC DIAGRAM

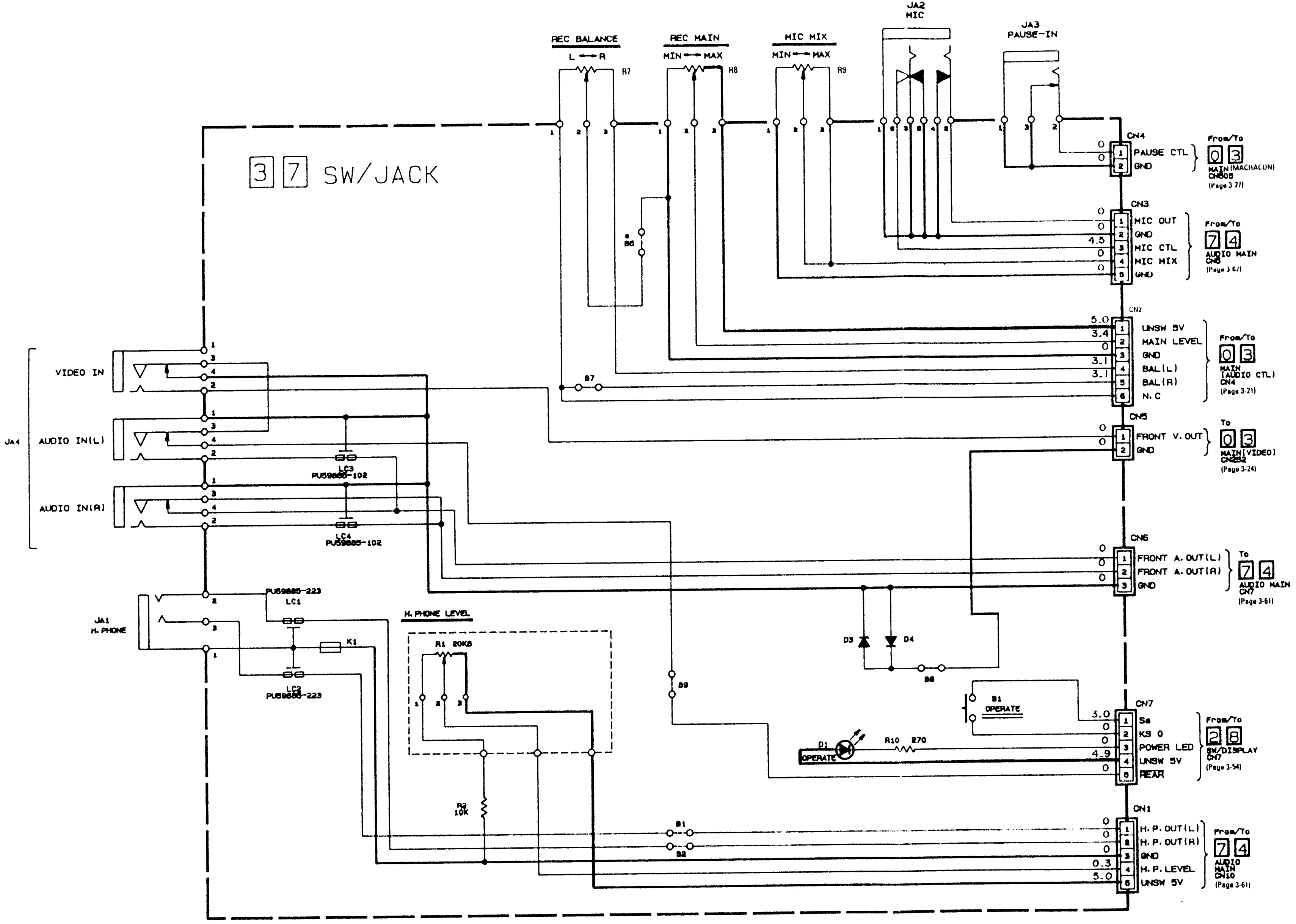


7 4 AUDIO MAIN
UNSW 5V
UNSW 12V
IC 3
IC 2
IC 1
IC 201
CH7
FRONT IN(L)
FRONT IN(R)
GND
CH8
LINE IN(L)
LINE IN(R)
GND
LINE OUT(L)
LINE OUT(R)
GND
UNSW 12V
CH10
HP(L)
HP(R)
GND
HP CTL
UNSW 5V
CH201
REC OUT
PB IN
GND
A. ERASE
CH202
BIAS OUT
GND
CH203
F.E.
CH204
F.ERASE TP
GND
CH2
RF AUDIO OUT
RD
A. MUTE
A. I. DATA
A. I. CLK
FE ON
A. ERASE
A. FF
A. FM
CH1
UNSW 5V
UNSW 12V
GND
SWD 12V
CH3
REC FM
PB FM
GND
SWD 12V
REC/PB 0.8 Vp-p

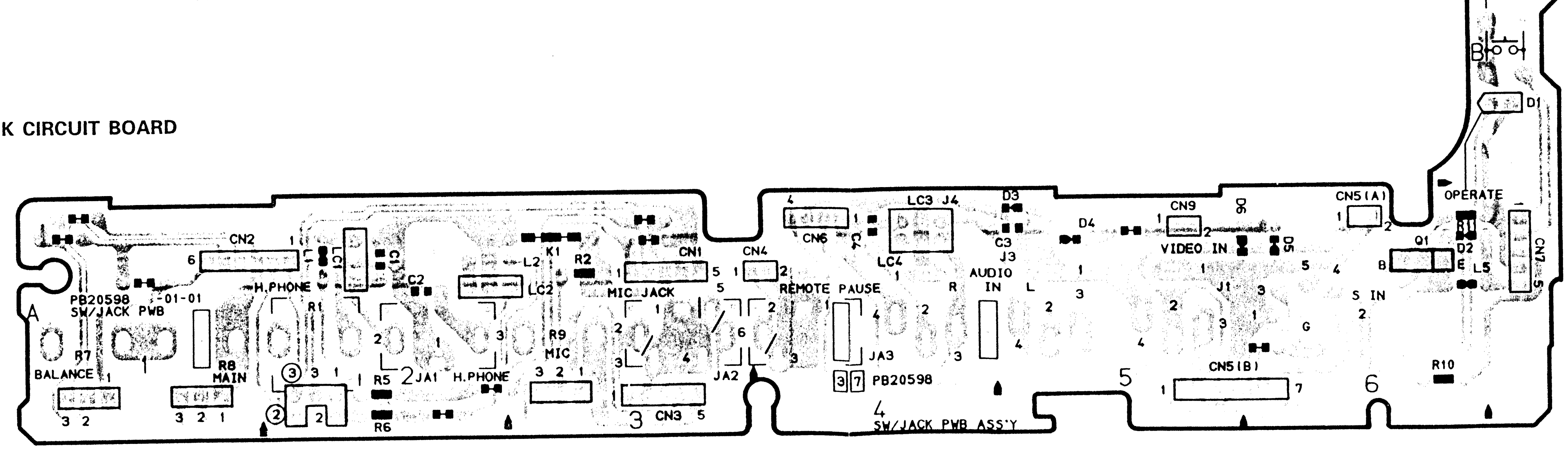
3.34 AUDIO MAIN CIRCUIT BOARD


AUDIO MAIN
UNIT ASS'Y
PU61383
7 4
PB10668
AUDIO MAIN PWB ASS'Y
TP34
F.ERASE
TP33
PB FM
TP54
REC FM
IC1
IC2
IC3
IC101
IC102
IC103
IC104
IC201
CN1
CN2
CN3
CN4
CN5
CN6
CN7
CN8
CN9
CN10
CN201
CN202
CN203
CN204
JP1
JP2
T201
T202
Q1
Q2
Q101
Q102
Q103
Q104
Q105
Q106
Q201
Q202
Q203
Q204
Q205
CP1
ICP-N10
CP201
L1
L201
EL 1254 V0
A
B
C
D
1
2
3
4
5
6

3.35 SW JACK SCHEMATIC DIAGRAM

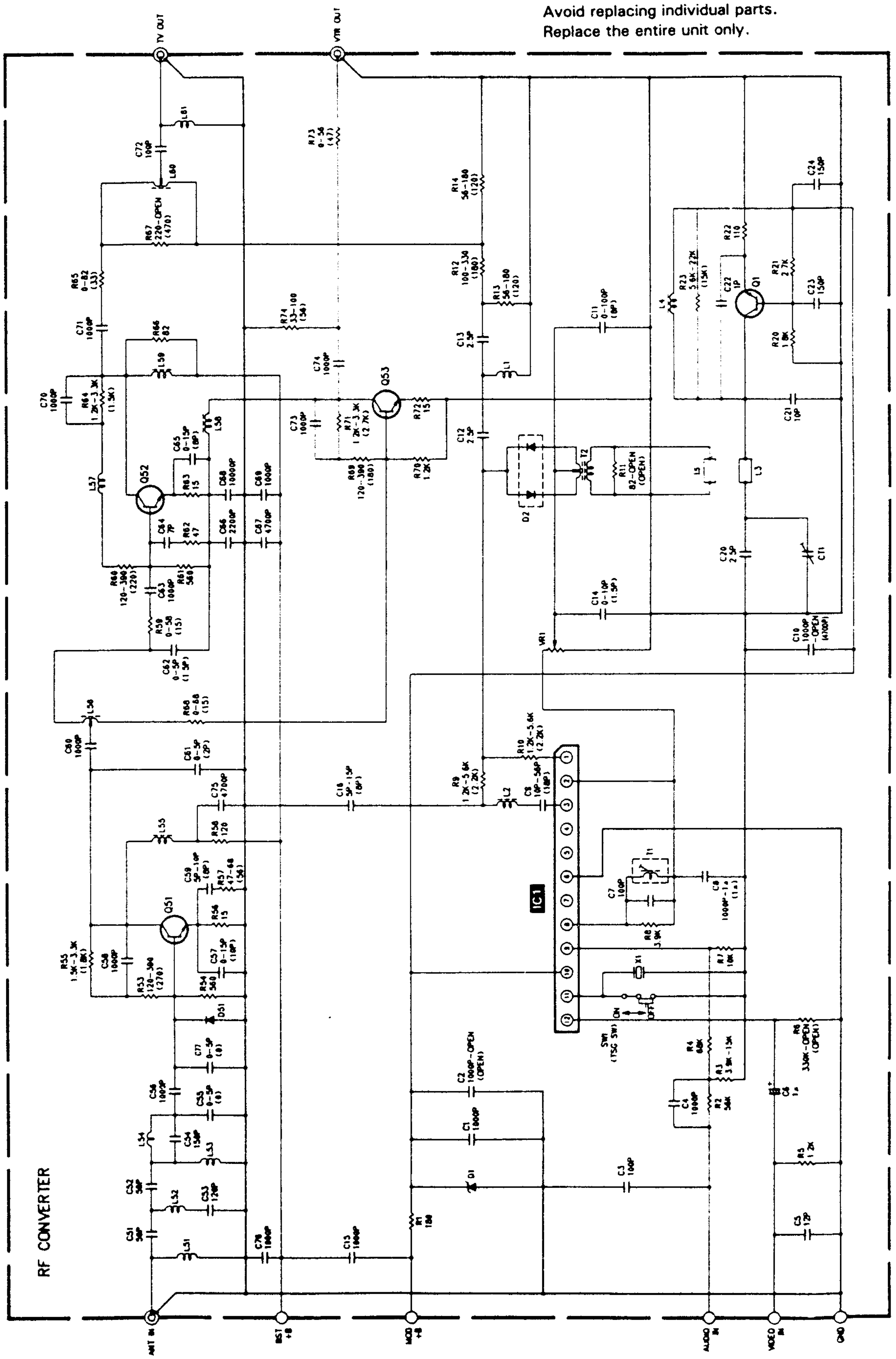

3 7 SW/JACK
REC BALANCE
L ↔ R
R7
REC MAIN
MIN ↔ MAX
R8
MIC MIX
MIN ↔ MAX
R9
JA2
MIC
JA3
PAUSE-IN
CN4
PAUSE CTL
GND
From/To
0 3
MAIN (MACHACON)
CN605
(Page 3-27)
CN3
MIC OUT
GND
MIC CTL
MIC MIX
GND
From/To
7 4
AUDIO MAIN
CN8
(Page 3-62)
CN2
UNSW 5V
MAIN LEVEL
GND
BAL (L)
BAL (R)
N. C
From/To
0 3
MAIN
(AUDIO CTL)
CN4
(Page 3-21)
CN5
FRONT V. OUT
GND
To
0 3
MAIN (VIDEO)
CN252
(Page 3-24)
CN6
FRONT A. OUT (L)
FRONT A. OUT (R)
GND
To
7 4
AUDIO MAIN
CN7
(Page 3-61)
CN7
Sa
KS 0
POWER LED
UNSW 5V
REAR
From/To
2 8
SW/DISPLAY
CN7
(Page 3-54)
CN1
H. P. OUT (L)
H. P. OUT (R)
GND
H. P. LEVEL
UNSW 5V
From/To
7 4
AUDIO
MAIN
CN10
(Page 3-61)
JA4
VIDEO IN
AUDIO IN (L)
AUDIO IN (R)
LC3
PU59885-102
LC4
PU59885-102
JA1
H. PHONE
PU59885-223
LC1
LC2
PU59885-223
K1
H. PHONE LEVEL
R1 20KB
R2
10K
B1
B2
B6
B7
B8
B9
D3
D4
S1
OPERATE
D1
OPERATE
R10 270
5.0
3.4
3.1
4.5
4.9
3.0
0.3

3.36 SW JACK CIRCUIT BOARD


OPERATE
S1
D1
OPERATE
CN2
PB20598 -01-01
SW/JACK PWB
H.PHONE
R1
R7
BALANCE
R8
MAIN
JA1
H.PHONE
R5
R6
C1
C2
L1
K1
R2
L2
LC2
R9
MIC
MIC JACK
CN1
CN3
CN4
JA2
CN6
C4
LC3
J4
LC4
D3
C3
J3
AUDIO IN
R
L
REMOTE PAUSE
JA3
3 7 PB20598
SW/JACK PWB ASS'Y
D4
CN9
VIDEO IN
D6
D5
J1
S IN
G
CN5(A)
CN5(B)
Q1
B
E
D2
L5
R10
CN7

3.37 RF CONVERTER SCHEMATIC DIAGRAM

NOTES:
1. All parts shown in this schematic are critical for safety.
2. This schematic is only for reference.
   Avoid replacing individual parts.
   Replace the entire unit only.

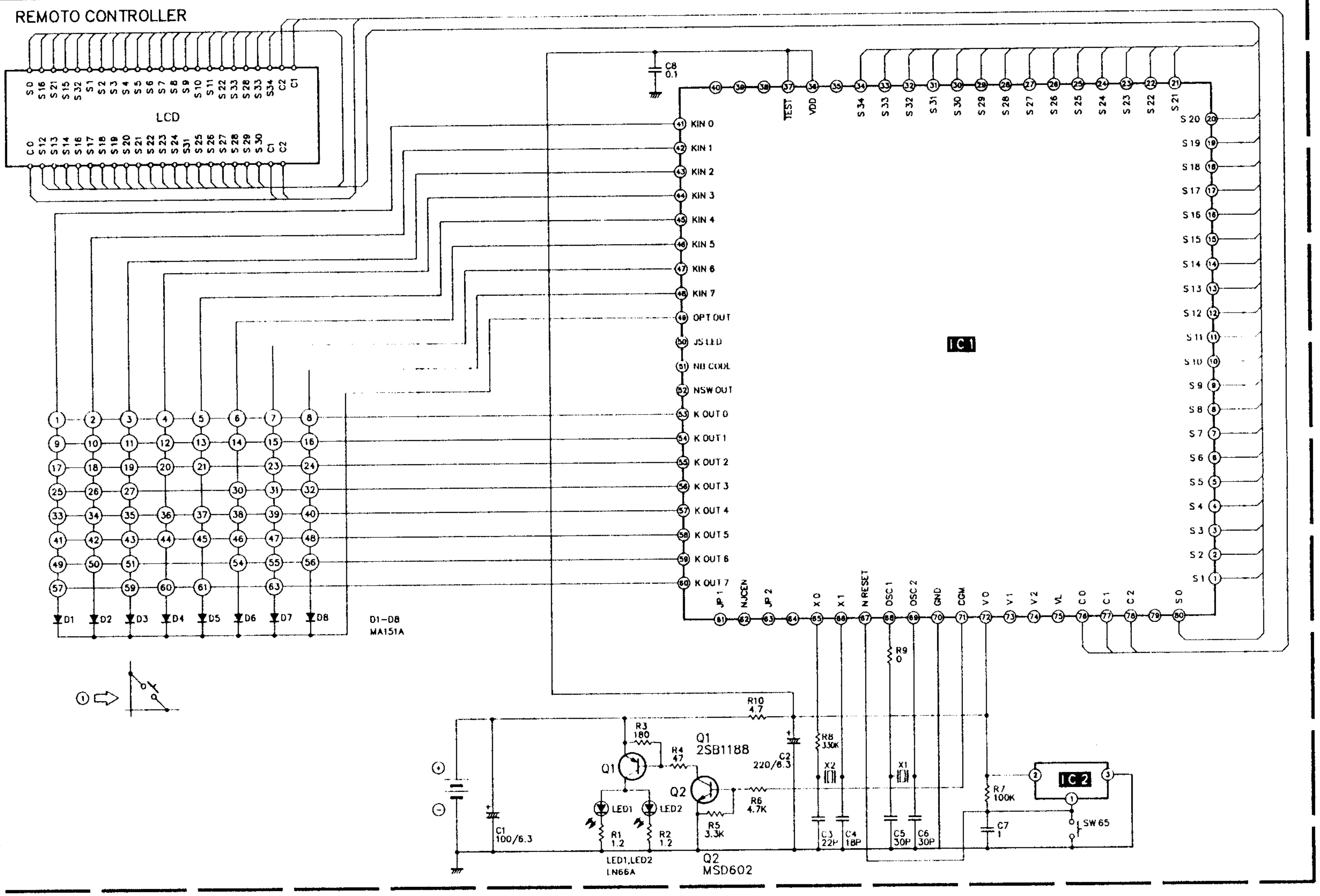

TV OUT
VTR OUT
RF CONVERTER
IC1
Q51
Q52
Q53
Q1
SW1 (TSG SW)
ON
OFF
ANT IN
BST +B
MOD +B
AUDIO IN
VIDEO IN
GND

3.38 REMOCON SCHEMATIC DIAGRAM

NOTE:

1. All parts shown in this schematic are critical for safety.
2. This schematic is only for reference.
   Avoid replacing individual parts.
   Replace the entire unit only.

KEY NO.	KEY NAME
1	TV STANDBY
2	TV/AUX
3	TV PROG. ∧
4	TV PROG. V
5	TV VOL +
6	TV VOL −
7	0
8	1
9	2
10	3
11	4
12	5
13	6
14	7
15	8
16	9
17	PROG.
18	SELECT
19	A/B CODE
20	TV CODE
21	TRANS
22	
23	MEM. PROG.
24	MEM. CANC.
25	REC
26	CLOCK ADJ
27	SUMMER TIME ADJ
28	
29	
30	VPS
31	SKIP SEARCH
32	SP/LP
33	PICTURE
34	CANC.
35	OPERATE
36	EJECT
37	INTORO(PAGE +)
38	STORE
39	INDEX →
40	V. SEARCH <<
41	PAUSE
42	V. SEARCH >>
43	REW
44	PLAY
45	F.F.
46	STOP
47	TV/VTR
48	TIMER
49	INDEX(PAGE −)
50	SET +
51	SET −
52	
53	
54	TIMED PAGE
55	ON SEARCH
56	DISPLAY
57	OSD
58	
59	LARGE/NORMAL
60	CH ∧
61	CH V
62	
63	INDEX
64	
25+44	REC START
25+41	REC PAUSE


REMOTO CONTROLLER
LCD
S0
S16
S21
S15
S32
S1
S2
S3
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S28
S29
S30
C1
C2
IC1
KIN 0
KIN 1
KIN 2
KIN 3
KIN 4
KIN 5
KIN 6
KIN 7
OPT OUT
JS LED
NB CODE
NSW OUT
K OUT 0
K OUT 1
K OUT 2
K OUT 3
K OUT 4
K OUT 5
K OUT 6
K OUT 7
JP 1
NJCEN
JP 2
X 0
X 1
N RESET
OSC 1
OSC 2
GND
CGM
V 0
V 1
V 2
VL
C 0
C 1
C 2
S 0
TEST
VDD
S 34
S 33
S 32
S 31
S 30
S 29
S 28
S 27
S 26
S 25
S 24
S 23
S 22
S 21
S 20
S 19
S 18
S 17
S 16
S 15
S 14
S 13
S 12
S 11
S 10
S 9
S 8
S 7
S 6
S 5
S 4
S 3
S 2
S 1
C8
0.1
D1
D2
D3
D4
D5
D6
D7
D8
D1–D8
MA151A
R10
4.7
R9
0
R8
330K
X2
X1
C3
22P
C4
18P
C5
30P
C6
30P
C2
220/6.3
R3
180
R4
47
Q1
2SB1188
Q2
MSD602
R6
4.7K
R5
3.3K
LED1
LED2
R1
1.2
R2
1.2
LED1,LED2
LN66A
C1
100/6.3
R7
100K
C7
1
IC2
SW65
⊕
⊖

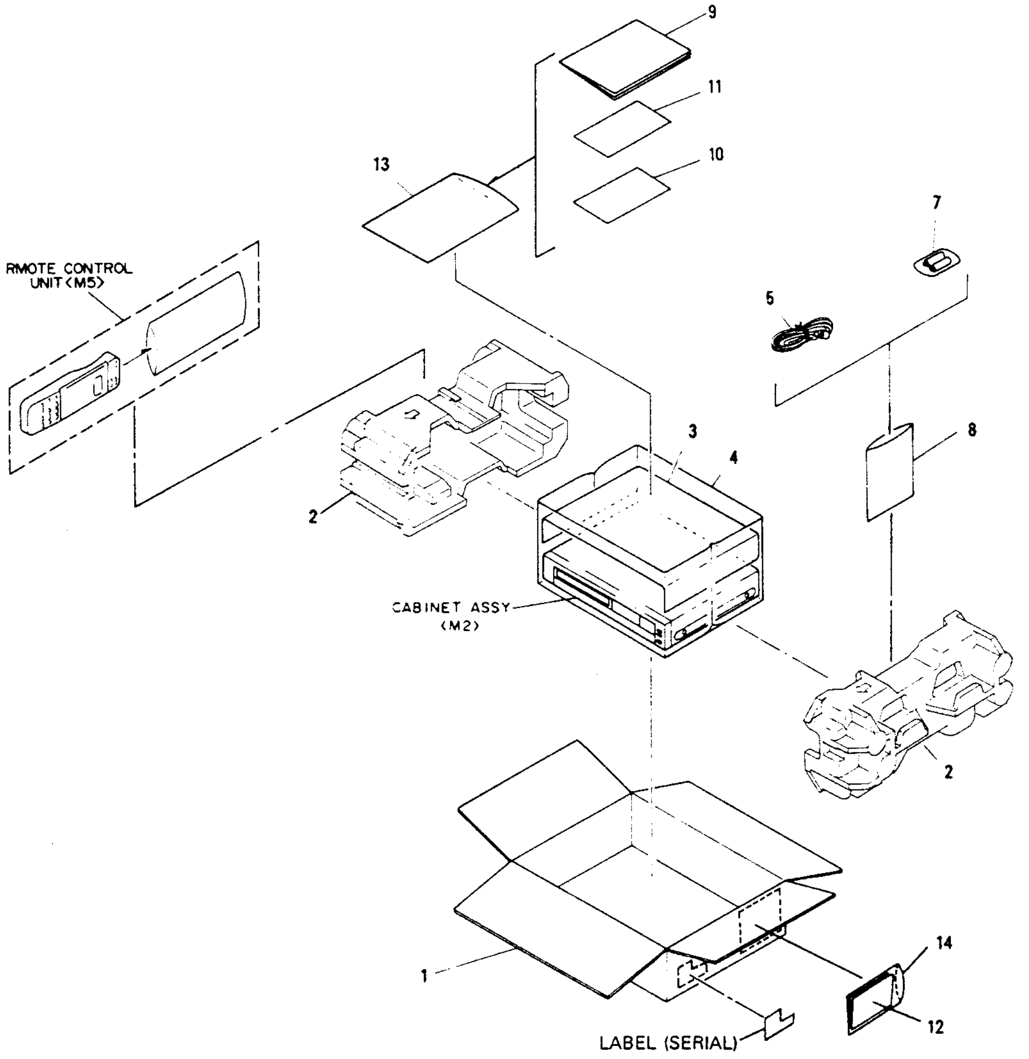
SECTION 4
EXPLODED VIEWS AND PARTS LIST

SAFETY PRECAUTION

Parts identified by the ⚠ symbol are critical for safety. Replace only with specified part numbers.

NOTE: <M > indicates mechanical symbol number.

4.1 PACKING ASSEMBLY <M1>



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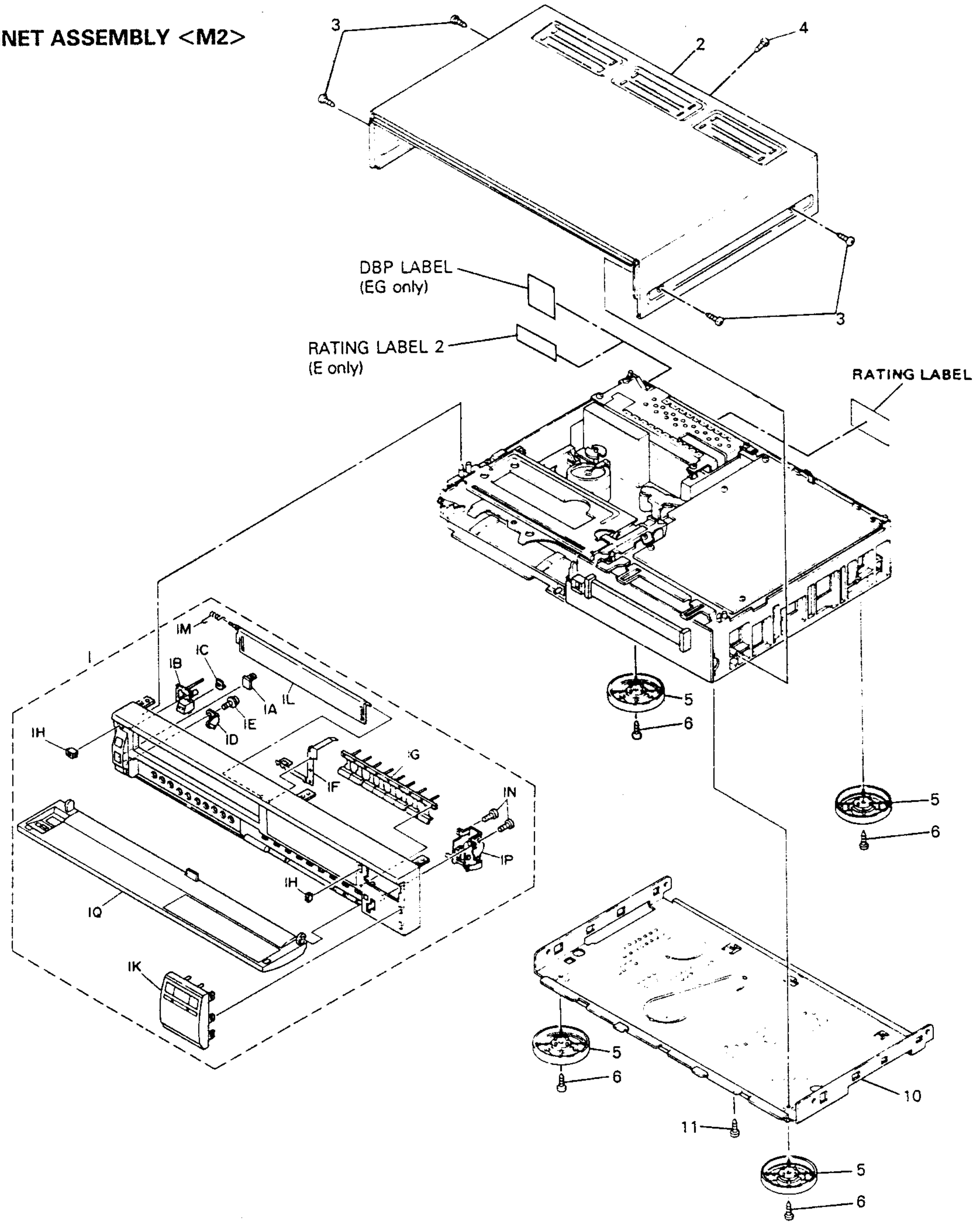
PACKING ASSEMBLY <M1>

#⚠	REF No.	PART No.	PART NAME, DESCRIPTION
	1	PQ33955-17	PACKING CASE,EG
	1	PQ33955-18	PACKING CASE,E
	2	PQ34537A	CUSHION ASSEMBLY
	3	PQ41026-8	PROTECT SHEET
	4	PQM30021-69	POLY BAG
	6	PU59168-3	RF CABLE
		or PU59167-3	RF CABLE
	7	UM-3DJ2P	BATTERY, X2
	8	QPGA020-02005	POLY BAG
⚠	9	PU30425-1323	INSTRUCTIONS
	10	TCN-3379	TAPE CATALOG
	11	PU61342-4	INST SHEET(RCU), EG
	12	BT-20114	WARRANTY CARD, EG
	13	QPGA025-03505	POLY BAG
	14	PQ33909	POLY BAG,EG

4.2 CABINET ASSEMBLY <M2>


3
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DBP LABEL
(EG only)
RATING LABEL 2
(E only)
RATING LABEL
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IC
IB
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IA
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6

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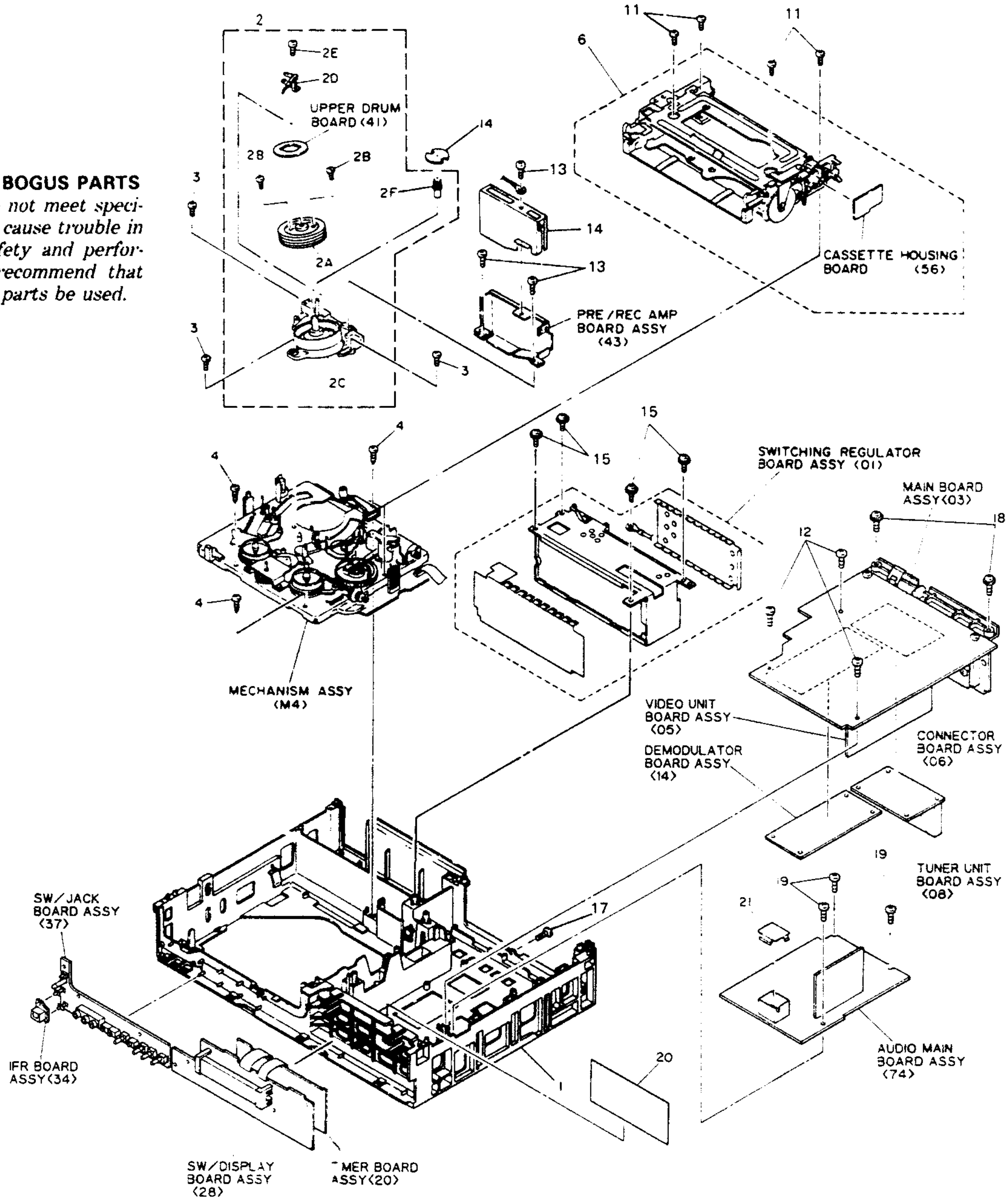
CABINET ASSEMBLY <M2>

#⚠ REF No.	PART No.	PART NAME, DESCRIPTION
1	PQ11392B-1	FRONT PANEL ASSEMBLY, EG
1	PQ11392C-1	FRONT PANEL ASSEMBLY, E
1A	PQ45763-1-1	WINDOW(IR)
1B	PQ34403-2	BUTTON(POWER)
1C	PQ45762-1-1	INDICATOR(POWER
1D	PQ45838A-1	SHAFT ASSEMBLY
1E	SDSF2608Z	SCREW, FOR SHAFT
1F	PQ34409-1-1	PLATE(EARTH)
1G	PQ21416-2-2	BUTTON
1H	PU59891-2	MAGNET ASSEMBLY, X2
1K	PQ21430A-1	COVER ASSEMBLY
1L	PQ21414-2	CASSETTE DOOR
1M	PQ45704	TORSION SPRING
1N	SDSF2608Z	SCREW,X2 FOR DAMPER
1P	PQ34436A	DAMPER UNIT ASSEMBLY
1Q	PQ11423B	DOOR ASSEMBLY, EG
1Q	PQ11423C	DOOR ASSEMBLY, E
⚠ 2	PQ11144-1-3	TOP COVER
3	PQ43827	SPECIAL SCREW, X4, TOP COVER
4	SDSF3010M	SCREW, FOR TOP COVER
5	PQ45531A-2	FOOT ASSEMBLY, X4
6	SDSF3010Z	SCREW, X4, FOR FOOT
⚠ 10	PQ11145	BOTTOM COVER
11	SDSF3010Z	SCREW, FOR BOTTOM COVER

4.3 CHASSIS ASSEMBLY <M3>

BEWARE OF BOGUS PARTS
Parts that do not meet specifications may cause trouble in regard to safety and performance. We recommend that genuine JVC parts be used.


2
2E
2D
UPPER DRUM BOARD (41)
2B
2B
2F
2A
2C
3
3
3
14
13
14
13
PRE/REC AMP BOARD ASSY (43)
11
11
6
CASSETTE HOUSING BOARD (56)
4
4
4
MECHANISM ASSY (M4)
15
15
SWITCHING REGULATOR BOARD ASSY (01)
MAIN BOARD ASSY(03)
18
12
VIDEO UNIT BOARD ASSY (05)
DEMODULATOR BOARD ASSY (14)
CONNECTOR BOARD ASSY (06)
19
TUNER UNIT BOARD ASSY (08)
19
21
17
SW/JACK BOARD ASSY (37)
IFR BOARD ASSY(34)
20
1
AUDIO MAIN BOARD ASSY (74)
SW/DISPLAY BOARD ASSY (28)
MER BOARD ASSY(20)

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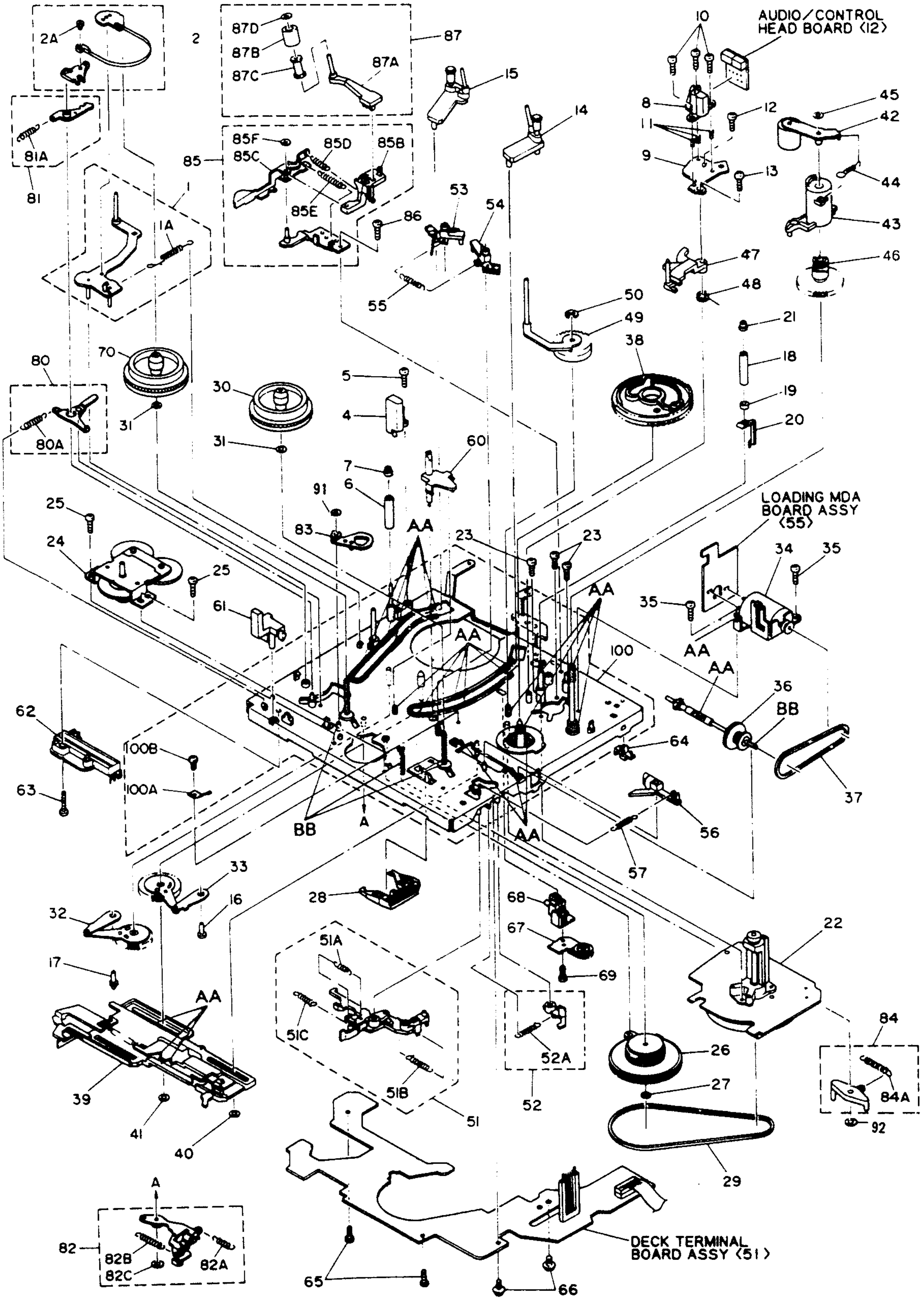
CHASSIS ASSEMBLY <M3>

#⚠ REF No.	PART No.	PART NAME, DESCRIPTION
⚠ 1	PQ11060	BOTTOM CHASSIS
2	PDV2263A	DRUM ASSEMBLY
2A	PDM2070D	UPPER DRUM ASSEMBLY
2B	PDM4165A	DRUM SCREW ASSEMBLY, X2
2C	PDM2138AF	LOWER DRUM MOTOR ASSEMBLY
2D	PDM4229A-1	BRUSH ASSEMBLY
2E	SPSG2606Z	SCREW
2F	PDM4226A	ROLLER ASSEMBLY
3	SPST2610Z	SCREW, X3, FOR DRUM ASSEMBLY
	or SDST2610Z	SCREW, X3, FOR DRUM ASSEMBLY
4	PQ43831	SPECIAL SCREW,X3 FOR MECHA
6	PUS29499D	CASSETTE HOUSING ASSEMBLY
11	SDST2608Z	SCREW, X4, CASSETTE HOUSING
	or SPST2608Z	SCREW, X4, CASSETTE HOUSING
12	SDSF2610Z	SCREW, X3, MAIN BOARD
13	SDSG2606Z	SCREW, X3, FOR PRE/REC
14	PQ33877-1-1	SHIELD CASE(2), FOR PRE/REC
15	SDSF2610Z	SCREW, X4, SW.REGULATOR
16	PQ45160	INERTIA PLATE
17	SDSF3010M	SCREW, FOR TERMINAL BOARD
18	GPSF2610Z	SCREW, X2, TERNIMAL BOARD
19	SDSF2610Z	SCREW, X3, AUDIO MAIN BOARD
20	PQ34163	SHIELD PLATE
21	PU59961	P/R AMP SHIELD2

4.4 MECHANISM ASSEMBLY <M4>


2A
2
87D
87B
87C
87A
87
15
10
AUDIO/CONTROL HEAD BOARD <12>
8
12
45
42
14
81A
81
85F
85D
85B
85C
85
85E
1
86
53
54
1A
11
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21
18
19
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70
80
38
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4
31
80A
31
60
7
6
91
83
AA
LOADING MDA BOARD ASSY <55>
25
24
23
23
34
35
35
25
61
AA
AA
100
AA
AA
36
BB
62
100B
100A
64
63
37
BB
A
AA
56
57
33
16
28
68
32
22
67
51A
69
17
AA
39
51C
52A
26
84
51B
52
51
27
84A
92
41
40
29
A
82
82B
82C
82A
DECK TERMINAL BOARD ASSY <51>
65
66

Category	Part number	MARK
Grease	KANTO-G-31KAV	AA
Oil	COSMO-HV56	BB

NOTE: The section marked in AA and BB indicate lubrication and greasing areas.

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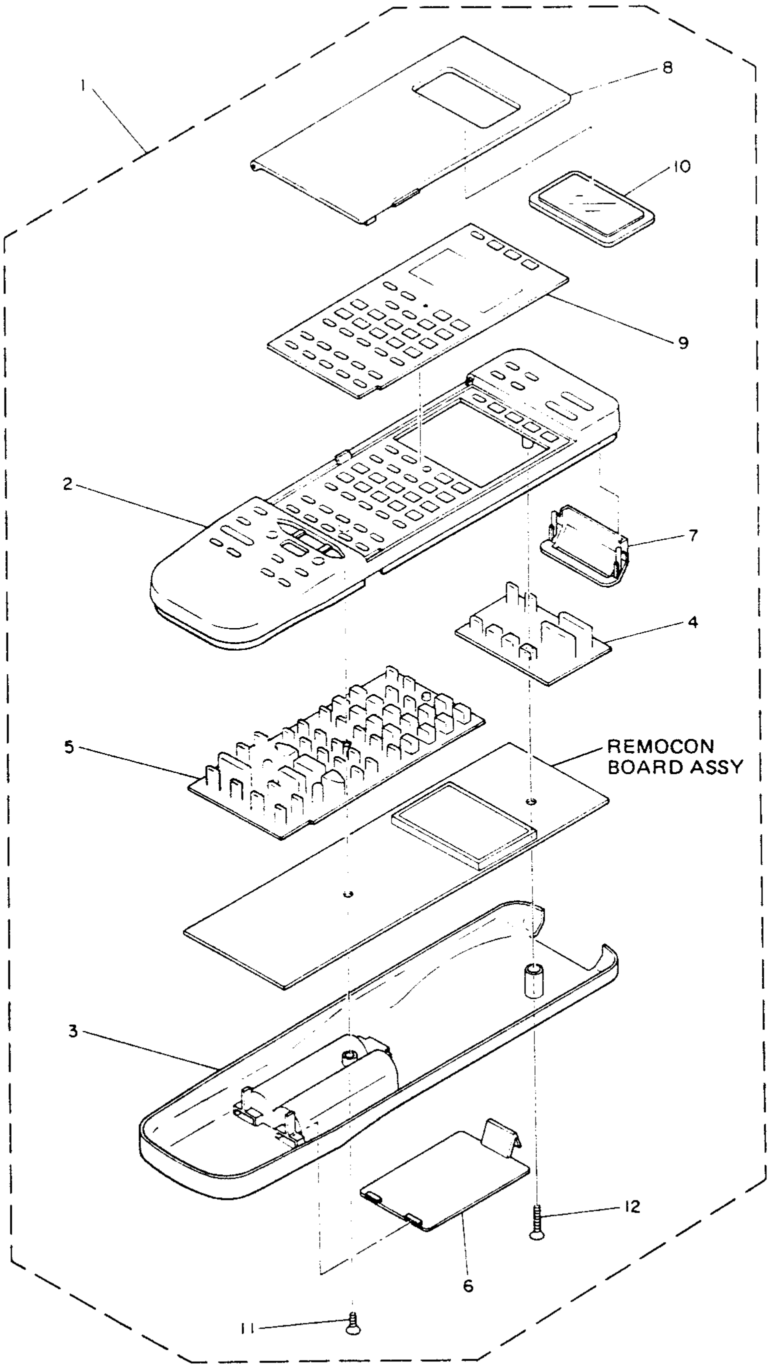
MECHANISM ASSEMBLY <M4>

#⚠ REF No.	PART No.	PART NAME, DESCRIPTION
1	PQ43497E-11	TENSION ARM ASSY
1A	PQ43500	TENSION SPRING
2	PQ44734A-7	TENSION BAND ASSY
2A	PQ45456	ADJUST PIN
4	PU60616	FULL ERASE HEAD
5	SDSF2614Z	SCREW
6	PQ43505-1-1	ROLLER
7	PQ43506	GUIDE POLE CAP
8	PU61002	AUDIO/CONTROL HEAD
9	PQ43509	HEAD BASE
10	PQ43687A	SPECIAL SCREW,X3
11	PQM30002-192	COMPRESSION SPRING,X3
12	SPSF2608M	SCREW
13	SPSP2606Z	SCREW
14	PU61103-2-7	POLE BASE(TAKE-UP) ASSY
15	PU61151-2-6	POLE BASE(SUPPLY) ASSY
16	PQ45895	STOPPER(T)
17	PQ45894	STOPPER(S)
18	PQ43526-1-3	TAPE GUIDE
19	PQ43670-1-1	GUIDE FLANGE
20	PQ43675	TAPE GUARD
21	PQ43506	GUIDE POLE CAP
⚠ 22	PU61003-1-2	CAPSTAN MOTOR
23	SPSG2608Z	SCREW,X3
24	PU61246	IDLER GEAR UNIT
25	SPST2606Z	SCREW,X2
26	PU61245-1-3	CLUTCH UNIT
27	PQM30017-8	SLIT WASHER
28	PQ43532B	CHANGE LEVER ASSY
29	PU61006	TIMING BELT
30	PU60858-1-4	REEL DISK (TAKE-UP)
31	PQM30018-54	SPACER,X2
32	PQ43537A	LOADING ARM ASSY (SUPPLY)
33	PQ43542B	LOADING ARM ASSY (TAKE-UP)
⚠ 34	PQ43676B-5	MODE MOTOR ASSY
35	SPST2606Z	SCREW,X2
36	PQ43548A-3	WORM CLUTCH ASSY
37	PQM30003-23	LOADING BELT
38	PQ20822-2-7	CONTROL CAM
39	PQ44581A-6	PLATE ASSY
40	PQM30017-12	SLIT WASHER
41	PQM30017-8	SLIT WASHER
42	PQ43558A-5	PINCH ROLLER ARM ASSY
	or PQ43558B	PINCH ROLLER ARM ASSY
43	PQ32415	PINCH ROLLER PRESS LEVER
44	PQM30001-233	TENSION SPRING
45	PQM30017-12	SLIT WASHER
46	PQ32416-2	PINCH ROLLER CAM
47	PQ43567A-13	GUIDE ARM ASSY
48	PQ43569-1-3	TORSION SPRING
49	PQ43570A-2	HALF LOADING GEAR ASSY
50	PQM30017-12	SLIT WASHER
51	PQ43575A-5	CANCEL LEVER ASSY
51A	PQM30001-273	TENSION SPRING
51B	PQM30001-237	TENSION SPRING
51C	PQM30001-274	TENSION SPRING
52	PQ43578A-2	HOOK ASSY
52A	PQM30001-238	TENSION SPRING
53	PQ43581C	MAIN BRAKE(SUPPLY) ASSY
54	PQ43582B	MAIN BRAKE(TAKE-UP) ASSY
55	PQM30001-251	TENSION SPRING
56	PQ43583A-3	SUB BRAKE ASSY (TAKE-UP)
57	PQM30001-346	TENSION SPRING
60	PU60621-1-2	LED HOLDER,(INCL.D1)
61	PU60624-1-4	REC SAFETY SWITCH(S2)
62	PU61247-1-1	SLIDE ENCORDER,(S3)
63	SDSF2614Z	SCREW
64	PQ32516	PWB HOLDER
65	SDST2616Z	SCREW,X2
66	GPSF2608Z	SCREW,X2
67	PQ43912A-7	PULLEY ARM ASSY
68	PQ33249	PULLEY BASE
69	PQ45121A	SCREW
70	PU60859-1-4	REEL DISK (SUPPLY)
	or PQ45622A	REEL DISK (SUPPLY)
80	PQ44739A-1	LOCK LEVER 1 ASSY
80A	PQM30001-278-46	TENSION SPRING
81	PQ44741A-3	LOCK LEVER 2 ASSY
81A	PQM30001-279-52	TENSION SPRING
82	PQ44743A-8	IDLER LEVER ASSY
82A	PQM30001-344	TENSION SPRING
82B	PQM30001-301	TENSION SPRING
82C	PQM30017-5	SLIT WASHER
83	PQ44746A-2	OFF LEVER ASSY
84	PQ44585A-8	CAPSTAN BRAKE ASSY
84A	PQM30001-282-52	SPRING
85	PQ44843A-3	ARM BASE ASSY
85B	PQ33511-1-2	CLEANER ARM
85C	PQ44841-1-4	CANCEL LEVER
85D	PQM30001-299	TENSION SPRING
85E	PQM30001-300	TENSION SPRING
85F	PQM30017-5	SLIT WASHER
86	SPST2606Z	SCREW
87	PQ44840B-5	CLEANER BASE ASSY
87A	PQ44844A	CLEANER BASE SUB ASSY
87B	PQ44837	CLEANER
87C	PQ45689	CLEANER HOLDER
87D	PQM30017-38	SLIT WASHER
91	PQM30017-5	SLIT WASHER
92	PQM30017-8	SLIT WASHER
100	PQ20994B-5	MAIN DECK ASSY
	or PQ21232B-1	MAIN DECK ASSY
100A	PQ43849	EARTH PLATE
100B	SPST2604Z	SCREW

4.5 REMOTE CONTROL UNIT <M5>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REMOCON
BOARD ASSY
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#⚠ REF No.	PART No.	PART NAME, DESCRIPTION
******	******	******
		REMOTE CONTROLLER <M5>
⚠ 1	PQ11202AF	REMOTECTL UNIT
2	PQ11203-16	COVER(FRONT)
3	PQ11093	COVER(REAR)
4	PQ33870-9	BUTTON(1)
5	PQ21253-16	BUTTON(2)
6	PQ33609	CAP(BATTERY)
7	PQ33610	WINDOW(IR)
8	PQ33871-3	DOOR
9	PQ33872-26	PLATE
10	PQ45167	WINDOW(DOOR)
11	SSSF2008M	SCREW
12	SSSF2006M	SCREW

SECTION 5
ELECTRICAL PARTS LIST

SAFETY PRECAUTION

Parts identified by the ⚠ symbol are critical for safety. Replace only with specified part numbers.

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SWITCH REGULATOR BOARD ASSEMBLY <01>

#⚠	REF No.	PART No.	PART NAME, DESCRIPTION	
	PWBA	PB20526G	SW.REGULATOR BOARD ASSEMBLY	
	FB1	PU60281-4	FERRATE BEADS, X2	
	IC1	LM358N	IC	
		or LM358P	IC	
		or BA10358	IC	
	Q1	2SC4517A-LF619	TRANSISTOR	
	Q2	2SC3616(MLK)	TRANSISTOR	
	Q5	2SB1425(EU)	TRANSISTOR	
	D1	10E6-F2	DIODE	
	D2	10E6-F2	DIODE	
	D3	10E6-F2	DIODE	
	D4	10E6-F2	DIODE	
	D5	AU01	FR DIODE	
		or 1SR153-400-T2	FR DIODE	
	D6	AU01	FR DIODE	
		or 1SR153-400-T2	FR DIODE	
	D7	MTZ27BT-77	ZENER DIODE	
	D8	AU01Z	FR DIODE	
		or ERA18-02-T2	FR DIODE	
		or 1SR153-200-T2	FR DIODE	
	D14	AU01Z	FR DIODE	
		or ERA18-02-T2	FR DIODE	
		or 1SR153-200-T2	FR DIODE	
	D15	AU01Z	FR DIODE	
		or ERA18-02-T2	FR DIODE	
		or 1SR153-200-T2	FR DIODE	
	D16	FML-12S	FR DIODE	
		or MA644	FR DIODE	
		or 5DL2CZ41A	FR DIODE	
		or FCF06A20	FR DIODE	
	D17	FMB-24	BARRIER DIODE	
		or F5KQ40B	BARRIER DIODE	
		or 5GWJ2CZ42	SB DIODE	
	D18	AU01Z	FR DIODE	
		or ERA18-02-T2	FR DIODE	
		or 1SR153-200-T2	FR DIODE	
	D19	MTZ33AT-77	ZENER DIODE	
	D21	AU01Z	FR DIODE	
		or ERA18-02-T2	FR DIODE	
		or 1SR153-200-T2	FR DIODE	
	D22	MTZV6.2A	ZENER DIODE	
	D23	RD15ES-T1B1	ZENER DIODE	
	R1	YU40344-2R2	WW RESISTOR	
		or PERE0505-2R2	WW RESISTOR	
	R2	QRD161J-334	RESISTOR	330KΩ,1/6W
	R3	QRD161J-334	RESISTOR	330KΩ,1/6W
	R4	QRD161J-563	RESISTOR	56KΩ,1/6W
	R5	QRG029J-683G	OMF RESISTOR	68KΩ,2W
	R6	QRG029J-241G	OMF RESISTOR	240Ω,2W
	R7	QRD161J-122	RESISTOR	1.2KΩ,1/6W
	R8	QRD161J-561	RESISTOR	560Ω,1/6W
	R9	QRX014J-R39Z	MF RESISTOR	0.39Ω,1W
	R10	QRG029J-273A	OMF RESISTOR	27KΩ,2W
	R12	QRD161J-393	RESISTOR	39KΩ,1/6W
⚠	R16	QRG02DJ-222X	OMF RESISTOR	2.2KΩ,2W
	R17	QRD161J-471	RESISTOR	470Ω,1/6W
	R18	QRD161J-102	RESISTOR	1KΩ,1/6W
	R19	QRV144F-1071A	CMF RESISTOR	1.07KΩ,1/4W
	R20	QRV144F-1001A	CMF RESISTOR	1KΩ,1/4W
⚠	R21	QRZ0077-470X	FUSIBLE RESISTOR	47Ω,1/4W
	R22	QRD161J-272	RESISTOR	2.7KΩ,1/6W
	R23	QRD161J-471	RESISTOR	470Ω,1/6W
	R24	QRV144F-4423AY	CMF RESISTOR	442KΩ,1/4W
	R25	QRV144F-1002A	CMF RESISTOR	10.0KΩ,1/4W
	R26	QRV144F-1182A	CMF RESISTOR	11.8KΩ,1/4W
⚠	R27	QRZ0052-130	FUSIBLE RESISTOR	13Ω
	R28	QRD161J-331	RESISTOR	330Ω,1/6W
	R29	QRD161J-103	RESISTOR	10KΩ,1/6W
⚠	C1	QFZ9037-333	M CAPACITOR,E	0.033μF
⚠	C2	QFZ9022-333	MM CAPACITOR	0.033μF
⚠	C2	QFZ9037-333	M CAPACITOR	0.033μF
⚠	C3	QFZ9022-333	MM CAPACITOR	0.033μF
⚠	C3	QFZ9037-333	M CAPACITOR	0.033μF
⚠	C4	QCZ9016-102K	CAPACITOR,EG	0.001μF
⚠		or QCZ9047-102	CAPACITOR,EG	0.001μF
⚠	C5	QCZ9016-102K	CAPACITOR,EG	0.001μF
⚠		or QCZ9047-102	CAPACITOR,EG	0.001μF
⚠	C6	QCZ9016-222M	CAPACITOR	0.0022μF
⚠		or QCZ9048-222	CAPACITOR	0.0022μF
⚠	C7	QCZ9016-222M	CAPACITOR	0.0022μF
⚠		or QCZ9048-222	CAPACITOR	0.0022μF
⚠	C8	QCZ9016-222M	CAPACITOR	0.0022μF
⚠	C9	QCZ9016-222M	CAPACITOR	0.0022μF
⚠	C10	QCZ9016-222M	CAPACITOR	0.0022μF
⚠	C11	QCZ9016-222M	CAPACITOR	0.0022μF
	C12	PECA0738-826	E CAPACITOR	
		or PECA0793-826	E CAPACITOR	
	C13	QCZ0212-472	CAPACITOR	0.0047μF,1KV
	C14	QCZ0213-101Z	CAPACITOR	100pF,1KV

#⚠ REF No.	PART No.	PART NAME, DESCRIPTION	
C15	QFV11HJ-224	TF CAPACITOR	0.22μF,50V
	or PECA0780-224Z	M CAPACITOR	
C16	QFLA1HJ-682Z	M CAPACITOR	0.0068μF,50V
C17	QETC1HM-475	E CAPACITOR	4.7μF,50V
C18	QETC1JM-336	E CAPACITOR	33μF,63V
C19	QEZ0125-277	E CAPACITOR	270μF
	or QEZ0138-277	E CAPACITOR	270μF
C20	QETC1EM-227	E CAPACITOR	220μF,25V
C21	QEGB1CM-827	E CAPACITOR	820μF,16V
C22	QETB1CM-108	E CAPACITOR	1000μF,16V
C23	QFLA1HJ-102Z	M CAPACITOR	0.001μF,50V
C24	QEGB1AM-108	E CAPACITOR	1000μF,10V
C25	QETC1HM-476	E CAPACITOR	47μF,50V
C26	QETC1VM-336	E CAPACITOR	33μF,35V
C27	QFLA1HJ-103Z	M CAPACITOR	0.01μF,50V
C28	QEGC1AM-476	E CAPACITOR	47μF,10V
C29	QETC0JM-107	E CAPACITOR	100μF,6.3V
C30	QFLA1HJ-103Z	M CAPACITOR	0.01μF,50V
C31	QETB1AM-108	E CAPACITOR	1000μF,10V
C34	QETC1CM-107	E CAPACITOR	100μF,16V
C35	QFV11HJ-333	MMT CAPACITOR	0.033μF,50V
	or QFV41HJ-333	TF CAPACITOR	0.033μF,50V
L1	PELN0270-330KZ	COIL	33μH
	or PELN0628-330KZ	COIL	33μH
	or PELN0640-330KZ	COIL	33μH
L2	PELN0270-330KZ	COIL	33μH
	or PELN0628-330KZ	COIL	33μH
	or PELN0640-330KZ	COIL	33μH
L3	PELN0270-330KZ	COIL	33μH
	or PELN0628-330KZ	COIL	33μH
	or PELN0640-330KZ	COIL	33μH
⚠ PC1	PC111LS	PH COUPLER	
⚠ POC1	QMP3980-200	POWER CORD	
⚠ T1	PELN0480	SW TRANS	
⚠	or PELN0768	SW TRANS	
⚠ BKT1	PQ33738	BRACKET(SW REG)	
ETH1	PQ43872	EARTH PLATE,X2	
⚠ HD1	QHS3771-108	STRAIN RELIEF	
⚠ HD2	PU57505	FUSE CLIP,X2	
⚠ HS1	PQ44610-1-2	HEAT SINK, FOR Q1	
⚠ HS2	PQ45133	HEAT SINK, FOR D16,D17	

#⚠ REF No.	PART No.	PART NAME, DESCRIPTION	
⚠ LF1	PU59707	LINE FILTER,E	
⚠	or PELN0255	LINE FILTER,E	
⚠ LF2	PU61108	LINE FILTER	
⚠	or PU60347	LINE FILTER	
SCW1	SDST2605Z	SCREW,X2	
SCW2	YQM30032-22	SCREW	
SCW3	SDSG3008Z	SCREW, FOR Q1	
SCW4	SDSG3006Z	SCREW	
SCW5	SDSG3006Z	SCREW	
SCW6	SDSG3008Z	SCREW, X2, FOR D16,D17	
SLD1	PQ21202-1-3	SHIELD CASE(1)	
SLD2	PQ33739	SHIELD CASE(2)	
SLD3	PQ33740	SHIELD CASE(3)	
SLD4	PQ33741	SHIELD CASE(4)	
⚠ TAB1	A74316	TAB,X2	
CN1	PU60910-104	WIRE TRAP	
CN2	PU60910-108	CONNECTOR	
⚠ CP1	ICP-N25	CP	
⚠ CP2	ICP-N20	CIRCUIT PROTECTOR	
⚠ F1	QMF51E2-1R0	FUSE	1.0A
⚠	or QMF51E2-1R0J1	FUSE	1.0A

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MAIN BOARD ASSEMBLY <03>

PWBA	PB10671A-01	MAIN BOARD ASSEMBLY, EG	
PWBA	PB10671B-01	MAIN BOARD ASSEMBLY,E	
ERH1	PQ43012-1-1	EARTH PLATE	
⚠ RF1	PERF0091	RF CONVERTER	
D403	1SS133	DIODE	
	or MA165	DIODE	
C458	QEK61CM-106	E CAPACITOR	10μF,16V
CL1	PEME0802	CLAMP	

#△	REF No.	PART No.	PART NAME, DESCRIPTION	
	HD1	PEME0831	HOLDER, X2, FOR TUNER	
	HD2	PEME0841	HOLDER, X2, FOR TUNER	
	SCW1	SDST2605Z	SCREW, FOR EARTH PLATE	
	SCW2	SDSF2608Z	SCREW, X2, FOR TERMINAL BOARD	
	SPC1	PU60010	SPACER	
	SPC2	PU59210-5	W.LOCKIN SPACER, X4	
△	TB1	PQ20996-24	TERMINAL BOARD, EG	
△	TB1	PQ20996-25	TERMINAL BOARD, E	
	WR1	ML-PU3954A	COAX. CABLE ASSY	
	TP3	PEMC0726-060C	TEST PIN	
		or PEMC0727	TEST PIN	

– AUDIO CTL SECTION –

#△	REF No.	PART No.	PART NAME, DESCRIPTION	
	IC1	M34225M2-110SP	IC	
	D1	1SS133	DIODE	
		or MA165	DIODE	
	D2	MTZ7.5B	ZENER DIODE	
		or HZS7.5EB2	ZENER DIODE	
		or RD7.5ES-T1B2	ZENER DIODE	
	D3	1SS133	DIODE	
		or MA165	DIODE	
	R1	QRD161J-102	RESISTOR	1KΩ,1/6W
	R2	QRD161J-102	RESISTOR	1KΩ,1/6W
	R5	QRD161J-473	RESISTOR	47KΩ,1/6W
	R6	QRD161J-102	RESISTOR	1KΩ,1/6W
	R7	QRD161J-102	RESISTOR	1KΩ,1/6W
	R8	QRD161J-103	RESISTOR	10KΩ,1/6W
	R9	QRD161J-472	RESISTOR	4.7KΩ,1/6W
	R10	QRD161J-132	RESISTOR	1.3KΩ,1/6W
	R11	QRD161J-152	RESISTOR	1.5KΩ,1/6W
	R12	QRD161J-102	RESISTOR	1KΩ,1/6W
	R13	QVZ3518-103AZ	V RESISTOR, VOL ADJ	10KΩ
	R14	QRD161J-102	RESISTOR	1KΩ,1/6W
	R15	QVZ3518-103AZ	V RESISTOR, BAL ADJ	10KΩ
	R16	QVZ3518-473A	V RESISTOR, BIAS ADJ	47KΩ
	R17	QRD161J-100	RESISTOR	10Ω,1/6W
	R18	QRD161J-472	RESISTOR	4.7KΩ,1/6W
	C1	QCC11EJ-104	CAPACITOR	0.1μF,25V
	C2	QEK61AM-476	E CAPACITOR	47μF,10V
	C3	QCBB1HJ-221	CAPACITOR	220pF,50V
	C4	QCBB1HJ-221	CAPACITOR	220pF,50V
	C5	QEK61HM-105	E CAPACITOR	1μF,50V
	C6	QEK61CM-106	E CAPACITOR	10μF,16V

#△	REF No.	PART No.	PART NAME, DESCRIPTION	
	L1	PU59153-101K	COIL	100μH
△	CF1	PEVB0352	RESONATOR	
	CN1	PU59555-3	CONNECTOR	
	CN2	PU61044-4	CONNECTOR	
	CN3	PU61044-9	WIRE TRAP	
	CN4	PU59555-5	CONNECTOR	
	CN5	PU61044-5	CONNECTOR	
	CN6	PEMC0949-002	HOUSING	
	CN7	PEMC0949-004R	HOUSING	
	CN8	PEMC0949-004	HOUSING	
	CN9	PU59555-4	CONNECTOR	
	CN10	PU58844-2	CONNECTOR	

– VIDEO SECTION –

#△	REF No.	PART No.	PART NAME, DESCRIPTION
	IC270	LVA523SA	IC
	IC280	BA7106LS	IC
		or XRA7106LS	IC
	Q201	2SC1740S(RS)	TRANSISTOR
		or 2SC3199(GB)-TJK	TRANSISTOR
		or 2SC3311A(RS)	TRANSISTOR
		or 2SC536SPA(FG)	TRANSISTOR
	Q202	2SC1740S(RS)	TRANSISTOR
		or 2SC3199(GB)-TJK	TRANSISTOR
		or 2SC3311A(RS)	TRANSISTOR
		or 2SC536SPA(FG)	TRANSISTOR
	Q203	DTC114WS	TRANSISTOR
	Q204	DTC114WS	TRANSISTOR
	Q205	DTC124ES	TRANSISTOR
	Q206	2SC1740S(RS)	TRANSISTOR
		or 2SC3199(GB)-TJK	TRANSISTOR
		or 2SC3311A(RS)	TRANSISTOR
		or 2SC536SPA(FG)	TRANSISTOR
	Q207	2SC1740S(RS)	TRANSISTOR
		or 2SC3199(GB)-TJK	TRANSISTOR
		or 2SC3311A(RS)	TRANSISTOR
		or 2SC536SPA(FG)	TRANSISTOR
	Q208	2SC1740S(RS)	TRANSISTOR
		or 2SC3199(GB)-TJK	TRANSISTOR
		or 2SC3311A(RS)	TRANSISTOR
		or 2SC536SPA(FG)	TRANSISTOR
	Q210	2SA933S(RS)	TRANSISTOR
		or 2SA1267(YG)-TJK	TRANSISTOR
	Q211	2SA933S(RS)	TRANSISTOR
		or 2SA1267(YG)-TJK	TRANSISTOR
	Q213	2SC1740S(RS)	TRANSISTOR
		or 2SC3199(GB)-TJK	TRANSISTOR
		or 2SC3311A(RS)	TRANSISTOR
		or 2SC536SPA(FG)	TRANSISTOR
	Q214	2SA933S(RS)	TRANSISTOR
		or 2SA1267(YG)-TJK	TRANSISTOR
	Q218	2SC1740S(RS)	TRANSISTOR
		or 2SC3199(GB)-TJK	TRANSISTOR
		or 2SC3311A(RS)	TRANSISTOR
		or 2SC536SPA(FG)	TRANSISTOR

#⚠ REF No.	PART No.	PART NAME, DESCRIPTION	
Q221	DTA124ES	TRANSISTOR	
D201	1SS133	DIODE	
	or MA165	DIODE	
D205	1SS133	DIODE	
	or MA165	DIODE	
D209	1SS133	DIODE	
	or MA165	DIODE	
D214	1SS133	DIODE	
	or MA165	DIODE	
D215	1SS133	DIODE	
	or MA165	DIODE	
D220	1SS133	DIODE	
	or MA165	DIODE	
D280	1SS133	DIODE	
	or MA165	DIODE	
D281	1SS133	DIODE	
	or MA165	DIODE	
R201	QRD161J-102	RESISTOR	1KΩ,1/6W
R202	QRD161J-223	RESISTOR	22KΩ,1/6W
R203	QRD161J-223	RESISTOR	22KΩ,1/6W
R204	QRD161J-682	RESISTOR	6.8KΩ,1/6W
R205	QRD161J-562	RESISTOR	5.6KΩ,1/6W
R206	QRD161J-101	RESISTOR	100Ω,1/6W
R207	QVZ3518-332AZ	V RESISTOR,LP VIDEO EQ	3.3KΩ
R208	QRD161J-102	RESISTOR	1KΩ,1/6W
R209	QRD161J-152	RESISTOR	1.5KΩ,1/6W
R210	QRD161J-621	RESISTOR	620Ω,1/6W
R211	QRD161J-333	RESISTOR	33KΩ,1/6W
R212	QRD161J-153	RESISTOR	15KΩ,1/6W
R213	QRD161J-222	RESISTOR	2.2KΩ,1/6W
R214	QRD161J-391	RESISTOR	390Ω,1/6W
R215	QVZ3518-681AZ	V RESISTOR, SP REC COLOUR	680Ω
R216	QRD161J-103	RESISTOR	10KΩ,1/6W
R217	QRD161J-103	RESISTOR	10KΩ,1/6W
R218	QRD161J-102	RESISTOR	1KΩ,1/6W
R219	QRD161J-123	RESISTOR	12KΩ,1/6W
R220	QRD161J-273	RESISTOR	27KΩ,1/6W
R221	QRD161J-332	RESISTOR	3.3KΩ,1/6W
R222	QVZ3518-681AZ	V RESISTOR, LP REC COLOUR	680Ω
R227	QRD121J-391S	RESISTOR	390Ω,1/2W
R229	QRD161J-123	RESISTOR	12KΩ,1/6W
R230	QRD161J-103	RESISTOR	10KΩ,1/6W
R240	QRD161J-102	RESISTOR	1KΩ,1/6W
R242	QRD161J-102	RESISTOR	1KΩ,1/6W
R243	QRD161J-102	RESISTOR	1KΩ,1/6W
R244	QRD161J-152	RESISTOR	1.5KΩ,1/6W
R245	QRD161J-102	RESISTOR	1KΩ,1/6W
R247	QRD161J-222	RESISTOR	2.2KΩ,1/6W
R248	QRD161J-222	RESISTOR	2.2KΩ,1/6W
R249	QRD161J-681	RESISTOR	680Ω,1/6W
R250	QRD161J-750	RESISTOR	75Ω,1/6W

#⚠ REF No.	PART No.	PART NAME, DESCRIPTION	
R251	QRD161J-750	RESISTOR	75Ω,1/6W
R256	QRD161J-242	RESISTOR	2.4KΩ,1/6W
R257	QRD161J-222	RESISTOR	2.2KΩ,1/6W
R258	QRD161J-222	RESISTOR	2.2KΩ,1/6W
R263	QRD161J-681	RESISTOR	680Ω,1/6W
R264	QRD161J-331	RESISTOR	330Ω,1/6W
R265	QRD161J-681	RESISTOR	680Ω,1/6W
R267	QRD161J-562	RESISTOR	5.6KΩ,1/6W
R271	QRD161J-750	RESISTOR	75Ω,1/6W
R280	QRD161J-914	RESISTOR	910KΩ,1/6W
R281	QRD161J-681	RESISTOR	680Ω,1/6W
R282	QRD161J-391	RESISTOR	390Ω,1/6W
R283	QRD161J-104	RESISTOR	100KΩ,1/6W
R284	QRD161J-273	RESISTOR	27KΩ,1/6W
R285	QRD161J-103	RESISTOR	10KΩ,1/6W
R286	QRD161J-333	RESISTOR	33KΩ,1/6W
C201	QCVB1CN-103	CAPACITOR	0.01μF,16V
C202	QCSB1HJ-390	CAPACITOR	39pF,50V
C203	QCVB1CN-103	CAPACITOR	0.01μF,16V
C204	QCVB1CN-103	CAPACITOR	0.01μF,16V
C205	QETC0JM-476	E CAPACITOR	47μF,6.3V
C206	QCVB1CN-103	CAPACITOR	0.01μF,16V
C207	QCVB1CN-103	CAPACITOR	0.01μF,16V
C208	QCVB1CN-103	CAPACITOR	0.01μF,16V
C209	QCVB1CN-103	CAPACITOR	0.01μF,16V
C210	QCVB1CN-103	CAPACITOR	0.01μF,16V
C212	QETC0JM-476	E CAPACITOR	47μF,6.3V
C213	QCVB1CN-103	CAPACITOR	0.01μF,16V
C214	QETC1AM-476	E CAPACITOR	47μF,10V
C215	QETC0JM-108	E CAPACITOR	1000μF,6.3V
C216	QETC0JM-476	E CAPACITOR	47μF,6.3V
C217	QCVB1CN-103	CAPACITOR	0.01μF,16V
C224	QETC1CM-476	E CAPACITOR	47μF,16V
C225	QCVB1CN-103	CAPACITOR	0.01μF,16V
C226	QCSB1HK-4R7	CAPACITOR	4.7pF,50V
C227	QCVB1CN-103	CAPACITOR	0.01μF,16V
C229	QCSB1HJ-560	CAPACITOR	56pF,50V
C235	QFV11HJ-103	MM CAPACITOR	0.01μF,50V
C271	QCVB1CN-103	CAPACITOR	0.01μF,16V
C272	QETC0JM-476	E CAPACITOR	47μF,6.3V
C273	QETC1CM-106	E CAPACITOR	10μF,16V
C274	QETC1CM-106	E CAPACITOR	10μF,16V
C280	QETC1CM-106	E CAPACITOR	10μF,16V
C281	QETC1HM-335	E CAPACITOR	3.3μF,50V
C282	QCBB1HJ-471	CAPACITOR	470pF,50V
C284	QCVB1CN-103	CAPACITOR	0.01μF,16V
C285	QCVB1CN-103	CAPACITOR	0.01μF,16V
C286	QCVB1CN-103	CAPACITOR	0.01μF,16V
C287	QCVB1CN-103	CAPACITOR	0.01μF,16V
C288	QFN31HJ-471	M CAPACITOR	470pF,50V
C289	QCSB1HJ-270	CAPACITOR	27pF,50V
C290	QCXB1CN-472	CAPACITOR	0.0047μF,16V

#△ REF No.	PART No.	PART NAME, DESCRIPTION	
C291	QCSB1HK-4R7	CAPACITOR	4.7pF,50V
C293	QETC0JM-477	E CAPACITOR	470μF,6.3V
C294	QCVB1CN-103	CAPACITOR	0.01μF,16V
C295	QCT25CH-101	CAPACITOR	100pF
L201	PU48530-101K	COIL	100μH
L202	PU59152-180J	COIL	18μH
L203	PU48530-101K	COIL	100μH
L204	PU48530-101K	COIL	100μH
L205	PU48530-101K	COIL	100μH
L206	PU59152-121J	COIL	120μH
L270	PU48530-101K	COIL	100μH
L280	PU48530-101K	COIL	100μH
L282	PU60655-2	COIL,SECAM DET	
EQ201	PU54838	EQUALIZER	
	or PU60714	EQUALIZER	
CN201	PU58844-6	CONNECTOR	
CN202	PU61044-10	CONNECTOR	
CN252	PEMC0949-002	CONNECTOR	

– SERVO SECTION –

#△ REF No.	PART No.	PART NAME, DESCRIPTION	
IC401	HD49780NT	IC	
IC451	BA7039	IC	
	or XRA7039	IC	
D401	1SS133	DIODE	
	or MA165	DIODE	
D402	1SS133	DIODE	
	or MA165	DIODE	
R401	QRD161J-122	RESISTOR	1.2KΩ,1/6W
R402	QRD161J-102	RESISTOR	1KΩ,1/6W
R403	QRD161J-105	RESISTOR	1MΩ,1/6W
R404	QRD161J-103	RESISTOR	10KΩ,1/6W
R405	QRD161J-474	RESISTOR	470KΩ,1/6W
R406	QRD161J-102	RESISTOR	1KΩ,1/6W
R407	QRD161J-102	RESISTOR	1KΩ,1/6W
R408	QRD161J-102	RESISTOR	1KΩ,1/6W
R409	QRD161J-102	RESISTOR	1KΩ,1/6W
R410	QRD161J-223	RESISTOR	22KΩ,1/6W
R411	QRD161J-225	RESISTOR	2.2MΩ,1/6W
R412	QRD161J-473	RESISTOR	47KΩ,1/6W
R413	QRD161J-222	RESISTOR	2.2KΩ,1/6W
R414	QRD161J-122	RESISTOR	1.2KΩ,1/6W
R415	QRD161J-332	RESISTOR	3.3KΩ,1/6W
R416	QRD161J-223	RESISTOR	22KΩ,1/6W
R417	QRD161J-223	RESISTOR	22KΩ,1/6W
R418	QRD161J-105	RESISTOR	1MΩ,1/6W
R419	QRD161J-273	RESISTOR	27KΩ,1/6W

#△ REF No.	PART No.	PART NAME, DESCRIPTION	
R421	QRD161J-394	RESISTOR	390KΩ,1/6W
R423	QRD161J-105	RESISTOR	1MΩ,1/6W
R424	QRD161J-273	RESISTOR	27KΩ,1/6W
R428	QRD161J-564	RESISTOR	560KΩ,1/6W
R429	QRD161J-183	RESISTOR	18KΩ,1/6W
R430	QRD161J-335	RESISTOR	3.3MΩ,1/6W
R431	QRD161J-334	RESISTOR	330KΩ,1/6W
R432	QRD161J-822	RESISTOR	8.2KΩ,1/6W
R436	QRD161J-102	RESISTOR	1KΩ,1/6W
R438	QRD161J-104	RESISTOR	100KΩ,1/6W
R451	QRD161J-102	RESISTOR	1KΩ,1/6W
R452	QRD161J-182	RESISTOR	1.8KΩ,1/6W
R453	QRD161J-102	RESISTOR	1KΩ,1/6W
R454	QRD161J-153	RESISTOR	15KΩ,1/6W
R455	QRD161J-102	RESISTOR	1KΩ,1/6W
R456	QRD161J-184	RESISTOR	180KΩ,1/6W
C401	QCBB1HJ-102	CAPACITOR	0.001μF,50V
C402	QEK61EM-226	E CAPACITOR	22μF,25V
C403	QEK61EM-226	E CAPACITOR	22μF,25V
C404	QCBB1HJ-181	CAPACITOR	180pF,50V
C405	QCBB1HJ-102	CAPACITOR	0.001μF,50V
C406	QFV71HJ-223	TF CAPACITOR	0.022μF,50V
	or QFV11HJ-223	MMT CAPACITOR	0.022μF,50V
C407	QCBB1HJ-102	CAPACITOR	0.001μF,50V
C408	QFV71HJ-563	TF CAPACITOR	0.056μF,50V
	or QFV11HJ-563	MMT CAPACITOR	0.056μF,50V
C409	QCBB1HJ-102	CAPACITOR	0.001μF,50V
C410	QCVB1CM-103	CAPACITOR	0.01μF,16V
C411	QFV71HJ-103	TF CAPACITOR	0.01μF,50V
	or QFV11HJ-103	MM CAPACITOR	0.01μF,50V
C412	QEK61CM-106	E CAPACITOR	10μF,16V
C413	QFV71HJ-224	TF CAPACITOR	0.22μF,50V
	or QFV11HJ-224	TF CAPACITOR	0.22μF,50V
C414	QCC31CK-223	CAPACITOR	0.022μF,16V
C415	QEK61EM-475	E CAPACITOR	4.7μF,25V
C416	QEK61EM-475	E CAPACITOR	4.7μF,25V
C417	QEK61CM-106	E CAPACITOR	10μF,16V
C418	QEK61CM-106	E CAPACITOR	10μF,16V
C419	QCC31CK-223	CAPACITOR	0.022μF,16V
C420	QFV71HJ-184	TF CAPACITOR	0.18μF,50V
	or QFV11HJ-184	MMT CAPACITOR	0.18μF,50V
C421	QCBB1HJ-471	CAPACITOR	470pF,50V
C451	QCVB1CM-103	CAPACITOR	0.01μF,16V
C452	QCC31CK-104	CAPACITOR	0.1μF,16V
C453	QCVB1CM-103	CAPACITOR	0.01μF,16V
C454	QCVB1CM-103	CAPACITOR	0.01μF,16V
C455	QCVB1CM-103	CAPACITOR	0.01μF,16V
C456	QCVB1CM-103	CAPACITOR	0.01μF,16V
C459	QFV71HJ-473	TF CAPACITOR	0.047μF,50V
	or QFV11HJ-473	MM CAPACITOR	0.047μF,50V
L451	PU59152-270J	COIL	27μH

#△ REF No.	PART No.	PART NAME, DESCRIPTION	
CN401	PEMC0949-003	HOUSING	
CN402	PU59555-4	CONNECTOR	
△ CP401	ICP-F15	CIRCUIT PROTECTOR	

– MECHACON SECTION –

#△ REF No.	PART No.	PART NAME, DESCRIPTION	
IC601	M37525M4-104SP	IC	
IC602	S-6731A-021	IC	
Q601	2SB1425(EU)	TRANSISTOR	
Q602	DTC114ES	TRANSISTOR	
Q603	DTC114ES	TRANSISTOR	
Q604	DTC114YS	TRANSISTOR	
D601	HZS7.5EB2	ZENER DIODE	
	or MTZ7.5B	ZENER DIODE	
	or UZ7.5BSB	ZENER DIODE	
D602	MA165	DIODE	
	or 1SS133	DIODE	
D603	MA165	DIODE	
	or 1SS133	DIODE	
D604	MA165	DIODE	
	or 1SS133	DIODE	
D605	MA165	DIODE	
	or 1SS133	DIODE	
D606	11ES2	DIODE	
	or ERA15-02	DIODE	
	or S5688G	DIODE	
	or 1SR139-200	DIODE	
D607	11ES2	DIODE	
	or ERA15-02	DIODE	
	or S5688G	DIODE	
	or 1SR139-200	DIODE	
R601	QRD161J-681	RESISTOR	680Ω,1/6W
R602	QRD161J-105	RESISTOR	1MΩ,1/6W
R603	QRD161J-103	RESISTOR	10KΩ,1/6W
R604	QRD161J-472	RESISTOR	4.7KΩ,1/6W
R605	QRD161J-472	RESISTOR	4.7KΩ,1/6W
R606	QRD161J-472	RESISTOR	4.7KΩ,1/6W
R607	QRD161J-472	RESISTOR	4.7KΩ,1/6W
R608	QRD161J-472	RESISTOR	4.7KΩ,1/6W
R609	QRD161J-472	RESISTOR	4.7KΩ,1/6W
R610	QRD161J-472	RESISTOR	4.7KΩ,1/6W
R611	QRD161J-472	RESISTOR	4.7KΩ,1/6W
R612	QRD161J-472	RESISTOR	4.7KΩ,1/6W
R613	QRD161J-472	RESISTOR	4.7KΩ,1/6W
R614	QRD161J-472	RESISTOR	4.7KΩ,1/6W
R615	QRD161J-472	RESISTOR	4.7KΩ,1/6W
R616	QRD161J-472	RESISTOR	4.7KΩ,1/6W
R617	QRD161J-472	RESISTOR	4.7KΩ,1/6W
R618	QRD161J-472	RESISTOR	4.7KΩ,1/6W
R619	QRD161J-472	RESISTOR	4.7KΩ,1/6W
R620	QRD161J-472	RESISTOR	4.7KΩ,1/6W
R621	QRD161J-472	RESISTOR	4.7KΩ,1/6W
R622	QRD161J-472	RESISTOR	4.7KΩ,1/6W
R623	QRD161J-472	RESISTOR	4.7KΩ,1/6W
R624	QRD161J-152	RESISTOR	1.5KΩ,1/6W
R625	QRD161J-102	RESISTOR	1KΩ,1/6W
R626	QRD161J-102	RESISTOR	1KΩ,1/6W
R627	QRD161J-102	RESISTOR	1KΩ,1/6W
R628	QRD161J-681	RESISTOR	680Ω,1/6W
R629	QRD161J-821	RESISTOR	820Ω,1/6W
R630	QRD161J-152	RESISTOR	1.5KΩ,1/6W
R631	QRD161J-471	RESISTOR	470Ω,1/6W
R632	QRD161J-333	RESISTOR	33KΩ,1/6W
R633	QRD161J-103	RESISTOR	10KΩ,1/6W
R634	QRD161J-103	RESISTOR	10KΩ,1/6W
R635	QRD161J-103	RESISTOR	10KΩ,1/6W
R636	QRD161J-103	RESISTOR	10KΩ,1/6W
R637	QRD161J-103	RESISTOR	10KΩ,1/6W
R638	QRD161J-103	RESISTOR	10KΩ,1/6W
R639	QRD161J-303	RESISTOR	30KΩ,1/6W
R640	QRD161J-333	RESISTOR	33KΩ,1/6W
R641	QRD161J-473	RESISTOR	47KΩ,1/6W
R642	QRD161J-563	RESISTOR	56KΩ,1/6W
R643	QRD161J-154	RESISTOR	150KΩ,1/6W
R644	QRD161J-224	RESISTOR	220KΩ,1/6W
R645	QRD161J-332	RESISTOR	3.3KΩ,1/6W
R646	QRD161J-332	RESISTOR	3.3KΩ,1/6W
R647	QRD161J-102	RESISTOR	1KΩ,1/6W
R648	QRD161J-102	RESISTOR	1KΩ,1/6W
R649	QRD161J-103	RESISTOR	10KΩ,1/6W
R650	QRD161J-103	RESISTOR	10KΩ,1/6W
C601	QCFB1EZ-223	CAPACITOR	0.022μF,25V
C602	QEK61EM-335	E CAPACITOR	3.3μF,25V
C603	QER61HM-105	E CAPACITOR	1μF,50V
C604	QEK60JM-107	E CAPACITOR	100μF,6.3V
C605	QCBB1HJ-121	CAPACITOR	120pF,50V
C606	QCBB1HJ-471	CAPACITOR	470pF,50V
C607	QCSB1HJ-100	CAPACITOR	10pF,50V
C608	QCC11EK-473	CAPACITOR	0.047μF,25V
L601	PU59152-2R2J	COIL	2.2μH
△ CF601	PEVB0340	RESONATOR	
△ TH801	PESC1041	POSI THERMISTOR	
△	or PESC1089	POSI THERMISTOR	
CN601	PEMC0722-017	WIRE TRAP	
CN602	PU59555-4	CONNECTOR	
CN603	PU59555-9	CONNECTOR	
CN604	PU59555-3	CONNECTOR	
CN605	PU58844-2R	CONNECTOR	
△ CP601	ICP-N20	CIRCUIT PROTECTOR	

- REGULATOR SECTION -

#⚠ REF No.	PART No.	PART NAME, DESCRIPTION	
IC801	UPC2405HF	IC	
Q702	2SB810H,J	TRANSISTOR	
Q801	2SB1425(EU)	TRANSISTOR	
Q802	2SD1855(EF)	TRANSISTOR	
Q803	2SB941P	TRANSISTOR	
	or 2SA1488	TRANSISTOR	
Q804	2SC1740S(Q)	TRANSISTOR	
Q805	2SC1740S	TRANSISTOR	
Q806	2SA933S	TRANSISTOR	
	or 2SA1267(YG)-TJK	TRANSISTOR	
D701	1SS133	DIODE	
	or MA165	DIODE	
D702	1SS133	DIODE	
	or MA165	DIODE	
D705	1SS133	DIODE	
	or MA165	DIODE	
D801	1SS133	DIODE	
	or MA165	DIODE	
D802	UZ5.1BSC	ZENER DIODE	
	or MTZV5.1C	ZENER DIODE	
	or RD5.1ES-T1B3	ZENER DIODE	
R703	QRD161J-393	RESISTOR	39KΩ,1/6W
R704	QRD161J-102	RESISTOR	1KΩ,1/6W
R801	QRD161J-103	RESISTOR	10KΩ,1/6W
R802	QRD161J-222	RESISTOR	2.2KΩ,1/6W
R803	QRD161J-102	RESISTOR	1KΩ,1/6W
R804	QRD161J-102	RESISTOR	1KΩ,1/6W
R805	QRD161J-102	RESISTOR	1KΩ,1/6W
R806	QRD161J-103	RESISTOR	10KΩ,1/6W
R807	QRD161J-221	RESISTOR	220Ω,1/6W
R808	QRD161J-472	RESISTOR	4.7KΩ,1/6W
R809	QRD161J-822	RESISTOR	8.2KΩ,1/6W
R810	QRD161J-471	RESISTOR	470Ω,1/6W
R811	QVZ3518-471A	V RESISTOR,SWD 5V	470Ω
	or QVZ3523-471A	V RESISTOR	470Ω
R812	QRD161J-103	RESISTOR	10KΩ,1/6W
C803	QETC1CM-107	E CAPACITOR	100μF,16V
C804	QETC0JM-107	E CAPACITOR	100μF,6.3V
C805	QETC1AM-107	E CAPACITOR	100μF,10V
C806	QFLA1HJ-103Z	M CAPACITOR	0.01μF,50V
C807	QETC1CM-476	E CAPACITOR	47μF,16V
C808	QETC0JM-107	E CAPACITOR	100μF,6.3V
C809	QFN31HJ-102	M CAPACITOR	0.001μF,50V
C811	QETA0JM-477	E CAPACITOR	470μF,6.3V

#⚠ REF No.	PART No.	PART NAME, DESCRIPTION	
L701	PU59152-100J	COIL	10μH
L703	PU59152-100J	COIL	10μH
CN701	PEMC0823-009	CONNECTOR (BOARD TO BOARD)	
CN702	PEMC0823-009	CONNECTOR (BOARD TO BOARD)	
CN801	PU61044-8	WIRE TRAP	
CN802	PU59555-3	CONNECTOR	
⚠ CP802	ICP-N10	CIRCUIT PROTECTOR	
⚠ CP803	ICP-N15	CIRCUIT PROTECTOR	

- VPS SECTION <EG ONLY> -

IC101	SAA4700	IC	
R101	QRD161J-472	RESISTOR	4.7KΩ,1/6W
R102	QRD161J-822	RESISTOR	8.2KΩ,1/6W
R103	QRD161J-753	RESISTOR	75KΩ,1/6W
C101	QCBB1HJ-102	CAPACITOR	0.001μF,50V
C102	QCXB1CN-472	CAPACITOR	0.0047μF,16V
C103	QFJ41HJ-104	M CAPACITOR	0.1μF,50V
C104	QCBB1HJ-471	CAPACITOR	470pF,50V
C105	QFJ41HJ-104	M CAPACITOR	0.1μF,50V
C106	QCXB1CN-472	CAPACITOR	0.0047μF,16V
C107	QCF11HP-223	CAPACITOR	0.022μF,50V

- ON SCREEN SECTION -

IC901	M50554-263SP	IC	
IC902	M52684AP	IC	
Q901	DTA114ES	TRANSISTOR	
Q902	DTA114ES	TRANSISTOR	
Q903	2SA933S(RS)	TRANSISTOR	
	or 2SA1267(YG)-TJK	TRANSISTOR	
Q904	2SC1740S(RS)	TRANSISTOR	
	or 2SC3199(GB)-TJK	TRANSISTOR	
	or 2SC3311A(RS)	TRANSISTOR	
	or 2SC536SPA(FG)	TRANSISTOR	
R901	QRD161J-472	RESISTOR	4.7KΩ,1/6W
R902	QRD161J-103	RESISTOR	10KΩ,1/6W
R903	QRD161J-681	RESISTOR	680Ω,1/6W
R904	QRD161J-103	RESISTOR	10KΩ,1/6W
R905	QRD161J-102	RESISTOR	1KΩ,1/6W
R906	QRD161J-471	RESISTOR	470Ω,1/6W
R907	QRD161J-472	RESISTOR	4.7KΩ,1/6W
R908	QRD161J-562	RESISTOR	5.6KΩ,1/6W
R909	QRD161J-752	RESISTOR	7.5KΩ,1/6W
R910	QRD161J-362	RESISTOR	3.6KΩ,1/6W
R911	QRD161J-622	RESISTOR	6.2KΩ,1/6W
R912	QRD161J-123	RESISTOR	12KΩ,1/6W
R913	QRD161J-123	RESISTOR	12KΩ,1/6W

#⚠ REF No.	PART No.	PART NAME, DESCRIPTION	
R914	QRD161J-103	RESISTOR	10KΩ,1/6W
R915	QRD161J-102	RESISTOR	1KΩ,1/6W
R916	QRD161J-105	RESISTOR	1MΩ,1/6W
R917	QRD161J-102	RESISTOR	1KΩ,1/6W
R918	QRD161J-471	RESISTOR	470Ω,1/6W
R919	QRD161J-472	RESISTOR	4.7KΩ,1/6W
R920	QRD161J-152	RESISTOR	1.5KΩ,1/6W
R921	QRD161J-271	RESISTOR	270Ω,1/6W
R922	QRD161J-103	RESISTOR	10KΩ,1/6W
R923	QRD161J-473	RESISTOR	47KΩ,1/6W
R924	QRD161J-154	RESISTOR	150KΩ,1/6W
R925	QRD161J-102	RESISTOR	1KΩ,1/6W
R927	QRD161J-151	RESISTOR	150Ω,1/6W
C903	QEK60JM-227	E CAPACITOR	220µF,6.3V
C904	QCVB1CM-103	CAPACITOR	0.01µF,16V
C905	QAT3120-450	TRIMMER CAPACITOR,DOT CLOCK	45pF
C906	QCSB1HJ-220	CAPACITOR	22pF,50V
C907	QCSB1HJ-330	CAPACITOR	33pF,50V
C908	QCSB1HJ-360	CAPACITOR	36pF,50V
C909	QCVB1CN-103	CAPACITOR	0.01µF,16V
C910	QCSB1HJ-270	CAPACITOR	27pF,50V
C911	QCVB1CN-103	CAPACITOR	0.01µF,16V
C912	QCSB1HJ-270	CAPACITOR	27pF,50V
C915	QCT25CH-150	CAPACITOR	15pF
C916	QAT3120-200	TRIMMER CAPACITOR,BURST CLOCK	20pF
C917	QCT25CH-5R0	CAPACITOR	5pF
C918	QCVB1CN-103	CAPACITOR	0.01µF,16V
C919	QEK60JM-227	E CAPACITOR	220µF,6.3V
C920	QCVB1CN-103	CAPACITOR	0.01µF,16V
C921	QCBB1HJ-331	CAPACITOR	330pF,50V
C922	QFN31HJ-222	M CAPACITOR	0.0022µF,50V
C923	QER61HM-105	E CAPACITOR	1µF,50V
C924	QCVB1CN-103	CAPACITOR	0.01µF,16V
C925	QCSB1HJ-220	CAPACITOR	22pF,50V
C926	QEK61CM-106	E CAPACITOR	10µF,16V
C927	QCVB1CN-103	CAPACITOR	0.01µF,16V
C928	QCXB1CN-152	CAPACITOR	0.0015µF,16V
C929	QCSB1HJ-330	CAPACITOR	33pF,50V
C931	QCSB1HJ-470	CAPACITOR	47pF,50V
C932	QEK61HM-335	E CAPACITOR	3.3µF,50V
C935	QCSB1HJ-120	CAPACITOR	12pF,50V
C936	QCSB1HJ-120	CAPACITOR	12pF,50V
L901	PU54223-101K	COIL	100µH
L902	PU58333-220J	COIL	22µH
L903	PU59152-8R2J	COIL	8.2µH
L904	PU59152-150J	COIL	15µH
L905	PU59152-220J	COIL	22µH
L906	PU59152-220J	COIL	22µH
L907	PU54223-101K	COIL	100µH
⚠ CF901	PU60086	RESONATOR	

#⚠ REF No.	PART No.	PART NAME, DESCRIPTION
⚠ X901	PU60908	CRYSTAL RESONATOR
CN901	PU59555-6	CONNECTOR

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VIDEO UNIT BOARD ASSEMBLY <05>

REF No.	PART No.	PART NAME, DESCRIPTION
PWBA	PB10554H-01	VIDEO UNIT BOARD ASSEMBLY
IC1	JCP0016-2	IC
IC2	TL8827P	IC
Q1	2SA1576(QRS)	TRANSISTOR
Q5	2SA1576(QRS)	TRANSISTOR
Q10	2SC4081(QRS)	TRANSISTOR
Q11	DTC144WU	TRANSISTOR
Q12	DTC144WU	TRANSISTOR
Q13	DTC144WU	TRANSISTOR
Q14	DTC144WU	TRANSISTOR
Q18	2SC4081(QRS)	TRANSISTOR
Q19	2SC4081(QRS)	TRANSISTOR
Q20	2SC4081(QRS)	TRANSISTOR
Q21	2SA1576(QRS)	TRANSISTOR
Q23	DTC144WU	TRANSISTOR
Q24	2SA1576(QRS)	TRANSISTOR
Q25	2SC4081(QRS)	TRANSISTOR
Q26	2SC4081(QRS)	TRANSISTOR
Q28	2SC4081(QRS)	TRANSISTOR
Q29	2SC4081(QRS)	TRANSISTOR
Q30	2SC4081(QRS)	TRANSISTOR
Q31	DTA124EU	TRANSISTOR
Q32	DTC144WU	TRANSISTOR
Q33	DTC114WU	TRANSISTOR
D1	1SS292Y	DIODE
D3	1SS133	DIODE
	or MA165	DIODE
D4	1SS133	DIODE
	or MA165	DIODE
D5	1SS133	DIODE
	or MA165	DIODE
D6	1SS133	DIODE
	or MA165	DIODE
D7	DAN202U	DIODE
D11	1SS133	DIODE
	or MA165	DIODE
D12	1SS133	DIODE
	or MA165	DIODE

#⚠ REF No.	PART No.	PART NAME, DESCRIPTION	
D14	1SS133	DIODE	
	or MA165	DIODE	
D15	1SS133	DIODE	
	or MA165	DIODE	
D17	DAN202U	DIODE	
D19	1SS133	DIODE	
	or MA165	DIODE	
D20	1SS133	DIODE	
	or MA165	DIODE	
D21	1SS133	DIODE	
	or MA165	DIODE	
D202	DAN202U	DIODE	
R1	NRSA63J-681N	RESISTOR	680Ω,1/16W
	or NRSA63J-681NC	RESISTOR	680Ω,1/16W
R2	NRSA63J-475N	RESISTOR	4.7MΩ,1/16W
	or NRSA63J-475NC	RESISTOR	4.7MΩ,1/16W
R3	NRSA63J-475N	RESISTOR	4.7MΩ,1/16W
	or NRSA63J-475NC	RESISTOR	4.7MΩ,1/16W
R5	NRSA63J-103N	RESISTOR	10KΩ,1/16W
	or NRSA63J-103NC	RESISTOR	10KΩ,1/16W
R6	NRSA63J-361N	RESISTOR	360Ω,1/16W
	or NRSA63J-361NC	RESISTOR	360Ω,1/16W
R10	NRSA63J-102N	RESISTOR	1KΩ,1/16W
	or NRSA63J-102NC	RESISTOR	1KΩ,1/16W
R11	NRSA63J-681N	RESISTOR	680Ω,1/16W
	or NRSA63J-681NC	RESISTOR	680Ω,1/16W
R12	ERS-L39J-102U	RESISTOR	1KΩ,1/8W
R13	NRSA63J-102N	RESISTOR	1KΩ,1/16W
	or NRSA63J-102NC	RESISTOR	1KΩ,1/16W
R16	NRSA63J-392N	RESISTOR	3.9KΩ,1/16W
	or NRSA63J-392NC	RESISTOR	3.9KΩ,1/16W
R17	NVP1301-222N	V.RESISTOR,PB Y LEVEL	2.2KΩ
R18	NRSA63J-333N	RESISTOR	33KΩ,1/16W
	or NRSA63J-333NC	RESISTOR	33KΩ,1/16W
R19	NRSA63J-823N	RESISTOR	82KΩ,1/16W
	or NRSA63J-823NC	RESISTOR	82KΩ,1/16W
R21	NRSA63J-331N	RESISTOR	330Ω,1/16W
	or NRSA63J-331NC	RESISTOR	330Ω,1/16W
R22	NRSA63J-621N	RESISTOR	620Ω,1/16W
	or NRSA63J-621NC	RESISTOR	620Ω,1/16W
R23	NRSA63J-561N	RESISTOR	560Ω,1/16W
	or NRSA63J-561NC	RESISTOR	560Ω,1/16W
R24	NRSA63J-182N	RESISTOR	1.8KΩ,1/16W
	or NRSA63J-182NC	RESISTOR	1.8KΩ,1/16W
R25	NRSA63J-222N	RESISTOR	2.2KΩ,1/16W
	or NRSA63J-222NC	RESISTOR	2.2KΩ,1/16W
R26	NRSA63J-102N	RESISTOR	1KΩ,1/16W
	or NRSA63J-102NC	RESISTOR	1KΩ,1/16W
R27	NRSA63J-183N	RESISTOR	18KΩ,1/16W
	or NRSA63J-183NC	RESISTOR	18KΩ,1/16W
R28	NRSA63J-822N	RESISTOR	8.2KΩ,1/16W
	or NRSA63J-822NC	RESISTOR	8.2KΩ,1/16W
R29	NRSA63J-562N	RESISTOR	5.6KΩ,1/16W
	or NRSA63J-562NC	RESISTOR	5.6KΩ,1/16W
R30	NRSA63J-562N	RESISTOR	5.6KΩ,1/16W
	or NRSA63J-562NC	RESISTOR	5.6KΩ,1/16W
R31	NRSA63J-183N	RESISTOR	18KΩ,1/16W
	or NRSA63J-183NC	RESISTOR	18KΩ,1/16W
R32	NRSA63J-562N	RESISTOR	5.6KΩ,1/16W
	or NRSA63J-562NC	RESISTOR	5.6KΩ,1/16W
R33	NRSA63J-562N	RESISTOR	5.6KΩ,1/16W
	or NRSA63J-562NC	RESISTOR	5.6KΩ,1/16W
R37	NRSA63J-162N	RESISTOR	1.6KΩ,1/16W
	or NRSA63J-162NC	RESISTOR	1.6KΩ,1/16W
R38	NRSA63J-332N	RESISTOR	3.3KΩ,1/16W
	or NRSA63J-332NC	RESISTOR	3.3KΩ,1/16W
R40	NRSA63J-102N	RESISTOR	1KΩ,1/16W
	or NRSA63J-102NC	RESISTOR	1KΩ,1/16W
R41	NVP1301-223N	V RESISTOR,CARRIER	22KΩ
R42	NVP1301-103N	V RESISTOR,DEVIATION	10KΩ
R43	NRSA63J-222N	RESISTOR	2.2KΩ,1/16W
	or NRSA63J-222NC	RESISTOR	2.2KΩ,1/16W
R44	NRSA63J-432N	RESISTOR	4.3KΩ,1/16W
	or NRSA63J-432NC	RESISTOR	4.3KΩ,1/16W
R45	NRSA63J-122N	RESISTOR	1.2KΩ,1/16W
	or NRSA63J-122NC	RESISTOR	1.2KΩ,1/16W
R46	NRSA63J-102N	RESISTOR	1KΩ,1/16W
R47	NRSA63J-103N	RESISTOR	10KΩ,1/16W
	or NRSA63J-103NC	RESISTOR	10KΩ,1/16W
R48	NRSA63G-911N	RESISTOR	910Ω,1/16W
	or NRSA63G-911NC	RESISTOR	910Ω,1/16W
R49	NRSA63J-103N	RESISTOR	10KΩ,1/16W
	or NRSA63J-103NC	RESISTOR	10KΩ,1/16W
R51	NRSA63J-102N	RESISTOR	1KΩ,1/16W
	or NRSA63J-102NC	RESISTOR	1KΩ,1/16W
R52	NRSA63J-102N	RESISTOR	1KΩ,1/16W
	or NRSA63J-102NC	RESISTOR	1KΩ,1/16W
R53	NRSA63J-102N	RESISTOR	1KΩ,1/16W
	or NRSA63J-102NC	RESISTOR	1KΩ,1/16W
R54	NRSA63J-242N	RESISTOR	2.4KΩ,1/16W
	or NRSA63J-242NC	RESISTOR	2.4KΩ,1/16W
R55	NRSA63J-392N	RESISTOR	3.9KΩ,1/16W
	or NRSA63J-392NC	RESISTOR	3.9KΩ,1/16W
R56	NVP1301-152N	V RESISTOR,NC BALANCE	1.5KΩ
R57	NRSA63J-102N	RESISTOR	1KΩ,1/16W
	or NRSA63J-102NC	RESISTOR	1KΩ,1/16W
R58	NRSA63J-821N	RESISTOR	820Ω,1/16W
	or NRSA63J-821NC	RESISTOR	820Ω,1/16W
R59	NRSA63J-102N	RESISTOR	1KΩ,1/16W
	or NRSA63J-102NC	RESISTOR	1KΩ,1/16W
R60	NVP1301-103N	V RESISTOR,EE Y LEVEL	10KΩ
R61	NRSA63J-102N	RESISTOR	1KΩ,1/16W
	or NRSA63J-102NC	RESISTOR	1KΩ,1/16W
R62	NRSA63J-334N	RESISTOR	330KΩ,1/16W
	or NRSA63J-334NC	RESISTOR	330KΩ,1/16W
R64	NVP1301-332N	V.RESISTOR,WHITE CLIP	3.3KΩ
R65	NRSA63J-103N	RESISTOR	10KΩ,1/16W
	or NRSA63J-103NC	RESISTOR	10KΩ,1/16W
R66	NRSA63J-434N	RESISTOR	430KΩ,1/16W
	or NRSA63J-434NC	RESISTOR	430KΩ,1/16W
R67	NRSA63J-102N	RESISTOR	1KΩ,1/16W
	or NRSA63J-102NC	RESISTOR	1KΩ,1/16W
R68	NRSA63J-102N	RESISTOR	1KΩ,1/16W
	or NRSA63J-102NC	RESISTOR	1KΩ,1/16W

#△ REF No.	PART No.	PART NAME, DESCRIPTION	
R69	NRSA63J-102N	RESISTOR	1KΩ,1/16W
	or NRSA63J-102NC	RESISTOR	1KΩ,1/16W
R70	NRSA63J-471N	RESISTOR	470Ω,1/16W
	or NRSA63J-471NC	RESISTOR	470Ω,1/16W
R71	NRSA63J-122N	RESISTOR	1.2KΩ,1/16W
	or NRSA63J-122NC	RESISTOR	1.2KΩ,1/16W
R72	NRSA63J-333N	RESISTOR	33KΩ,1/16W
	or NRSA63J-333NC	RESISTOR	33KΩ,1/16W
R73	NRSA63J-333N	RESISTOR	33KΩ,1/16W
	or NRSA63J-333NC	RESISTOR	33KΩ,1/16W
R74	NRSA63J-681N	RESISTOR	680Ω,1/16W
	or NRSA63J-681NC	RESISTOR	680Ω,1/16W
R75	NRSA63J-561N	RESISTOR	560Ω,1/16W
	or NRSA63J-561NC	RESISTOR	560Ω,1/16W
R76	NRSA63J-102N	RESISTOR	1KΩ,1/16W
	or NRSA63J-102NC	RESISTOR	1KΩ,1/16W
R77	NRSA63J-562N	RESISTOR	5.6KΩ,1/16W
	or NRSA63J-562NC	RESISTOR	5.6KΩ,1/16W
R78	NRSA63J-681N	RESISTOR	680Ω,1/16W
	or NRSA63J-681NC	RESISTOR	680Ω,1/16W
R79	NRSA63J-222N	RESISTOR	2.2KΩ,1/16W
	or NRSA63J-222NC	RESISTOR	2.2KΩ,1/16W
R81	NRSA63J-475N	RESISTOR	4.7MΩ,1/16W
	or NRSA63J-475NC	RESISTOR	4.7MΩ,1/16W
R83	NRSA63J-272N	RESISTOR	2.7KΩ,1/16W
	or NRSA63J-272NC	RESISTOR	2.7KΩ,1/16W
R84	NRSA63J-105N	RESISTOR	1MΩ,1/16W
	or NRSA63J-105NC	RESISTOR	1MΩ,1/16W
R85	NRSA63J-155N	RESISTOR	1.5MΩ,1/16W
	or NRSA63J-155NC	RESISTOR	1.5MΩ,1/16W
R88	NRSA63J-101N	RESISTOR	100Ω,1/16W
R89	NRSA63J-561N	RESISTOR	560Ω,1/16W
R90	NRSA63J-562N	RESISTOR	5.6KΩ,1/16W
R208	NRSA63J-472N	RESISTOR	4.7KΩ,1/16W
	or NRSA63J-472NC	RESISTOR	4.7KΩ,1/16W
C1	NCS31HJ-221A	CAPACITOR	220pF,50V
C2	NCS31HJ-220A	CAPACITOR	22pF,50V
C4	NCS31HG-561A	CAPACITOR	560pF,50V
C8	QCFA1EZ-473	CAPACITOR	0.047μF,25V
C9	NCS31HJ-150A	CAPACITOR	15pF,50V
C11	NCS31HJ-680A	CAPACITOR	68pF,50V
C12	NCS31HJ-220A	CAPACITOR	22pF,50V
C13	NCS31HG-121A	CAPACITOR	120pF,50V
C14	NCF31HZ-103A	CAPACITOR	0.01μF,50V
C17	NCF31HZ-103A	CAPACITOR	0.01μF,50V
C18	NCS31HJ-820A	CAPACITOR	82pF,50V
C19	QETC1HM-474	E CAPACITOR	0.47μF,50V
C20	NCF31HZ-103A	CAPACITOR	0.01μF,50V
C21	QETC1HM-474	E CAPACITOR	0.47μF,50V
C22	QETC1EM-475	E CAPACITOR	4.7μF,25V
C23	QETC1CM-106	E CAPACITOR	10μF,16V
C24	QEN61AM-226	NP E CAPACITOR	22μF,10V
	or QENC1AM-226	NP E CAPACITOR	22μF,10V
C25	QETC1CM-106	E CAPACITOR	10μF,16V
C26	PU57601-106MA	E CAPACITOR	10μF

#△ REF No.	PART No.	PART NAME, DESCRIPTION	
C27	NCF31HZ-103A	CAPACITOR	0.01μF,50V
C29	NCF31HZ-103A	CAPACITOR	0.01μF,50V
C30	QETC1HM-225	E CAPACITOR	2.2μF,50V
C31	QETC1HM-474	E CAPACITOR	0.47μF,50V
C32	NCS31HG-201A	CAPACITOR	200pF,50V
C33	NCB31EK-223A	CAPACITOR	0.022μF,25V
C34	QETC1EM-475	E CAPACITOR	4.7μF,25V
C35	NCS31HG-150A	CAPACITOR	15pF,50V
C36	QCF81CZ-105	CAPACITOR	1μF,16V
C37	NCB31EK-223A	CAPACITOR	0.022μF,25V
C38	NCS31HJ-101A	CAPACITOR	100pF,50V
C40	NCS31HJ-390A	CAPACITOR	39pF,50V
C41	NCB31CK-333A	CAPACITOR	0.033μF,16V
C42	QETC0JM-476	E CAPACITOR	47μF,6.3V
C43	QETC1CM-106	E CAPACITOR	10μF,16V
C44	NCF31HZ-103A	CAPACITOR	0.01μF,50V
C45	QETC1CM-106	E CAPACITOR	10μF,16V
C46	NCF31HZ-103A	CAPACITOR	0.01μF,50V
C47	QETC1HM-105	E CAPACITOR	1μF,50V
C48	NCF31HZ-103A	CAPACITOR	0.01μF,50V
C49	NCB31HK-472A	CAPACITOR	0.0047μF,50V
C50	NCF31HZ-103A	CAPACITOR	0.01μF,50V
C51	NCF31HZ-103A	CAPACITOR	0.01μF,50V
C52	QETC1HM-105	E CAPACITOR	1μF,50V
C53	QETC1CM-106	E CAPACITOR	10μF,16V
C54	NCF31HZ-103A	CAPACITOR	0.01μF,50V
C56	QEN61EM-475	NP E CAPACITOR	4.7μF,25V
	or QENC1EM-475	NP E CAPACITOR	4.7μF,25V
C57	QETC1EM-335	E CAPACITOR	3.3μF,25V
C58	QETC1EM-475	E CAPACITOR	4.7μF,25V
C59	NCF31CZ-473A	CAPACITOR	0.047μF,16V
C60	NCF31HZ-103A	CAPACITOR	0.01μF,50V
C61	QETC1HM-474	E CAPACITOR	0.47μF,50V
C62	NCB31CK-333A	CAPACITOR	0.033μF,16V
C63	NCF31HZ-103A	CAPACITOR	0.01μF,50V
C64	QETC1HM-104	E CAPACITOR	0.1μF,50V
C65	NCF31HZ-103A	CAPACITOR	0.01μF,50V
C66	QETC1HM-104	E CAPACITOR	0.1μF,50V
C67	NCF31CZ-473A	CAPACITOR	0.047μF,16V
C69	NCB31HK-103A	CAPACITOR	0.01μF,50V
C71	NCB31HK-182A	CAPACITOR	0.0018μF,50V
C72	QETC1EM-475	E CAPACITOR	4.7μF,25V
C73	QETC1HM-105	E CAPACITOR	1μF,50V
C74	QETC0JM-107	E CAPACITOR	100μF,6.3V
C75	NCF31HZ-103A	CAPACITOR	0.01μF,50V
C76	NCF31HZ-103A	CAPACITOR	0.01μF,50V
C77	QETC1HM-104	E CAPACITOR	0.1μF,50V
C78	QCVB1CN-103	CAPACITOR	0.01μF,16V
C79	NCF31HZ-103A	CAPACITOR	0.01μF,50V
C80	NCS31HJ-240A	CAPACITOR	24pF,50V
C82	QETC1HM-225	E CAPACITOR	2.2μF,50V
C84	NCS31HJ-180A	CAPACITOR	18pF,50V
C91	NCS31HJ-620A	CAPACITOR	62pF,50V
C93	NCF31HZ-103A	CAPACITOR	0.01μF,50V
C96	NCF31HZ-103A	CAPACITOR	0.01μF,50V

#⚠	REF No.	PART No.	PART NAME, DESCRIPTION	
	C97	NCB31CK-333A	CAPACITOR	0.033μF,16V
	C98	NCB31HK-102A	CAPACITOR	0.001μF,50V
	C99	NCS31HJ-180A	CAPACITOR	18pF,50V
	C100	NCS31HG-361A	CAPACITOR	360pF,50V
	C102	QCYA1EK-104	CAPACITOR	0.1μF,25V
	L1	PU58201-121J	COIL	120μH
	L3	PU59152-330J	COIL	33μH
	L4	PU59152-330J	COIL	33μH
	L6	PU59152-820J	COIL	82μH
	L7	PU59152-221J	COIL	220μH
	L8	PU48530-101K	COIL	100μH
	L9	PU48530-101K	COIL	100μH
	L10	PU59152-680J	COIL	68μH
	L11	PU48530-101K	COIL	100μH
	L12	PU48530-101K	COIL	100μH
	L13	PU48530-561J	COIL	560μH
	L15	PU59152-150J	COIL	15μH
	L16	PU59152-820J	COIL	82μH
	LPF1	PELN0477	LOW PASS FILTER	
		or PELN0623	LOW PASS FILTER	
	LPF2	PELN0478	LOW PASS FILTER	
		or PELN0621	LOW PASS FILTER	
	LPF3	PU60128-2	LOW PASS FILTER	
		or PELN0622	LOW PASS FILTER	
	DL1	PU60490-2	COMB FILTER	
		or PU60340-3	2H DELAY LINE	
		or PU58971-5	2H DELAY LINE	
		or PU60222-2	2H DELAY LINE	
⚠	X1	PEVB0386	CRYSTAL RESONATOR	
⚠		or PU60653-2	CRYSTAL RESONATOR	
	SLD1	PQ45174	SHIELD PLATE	
	SLD2	PQ45173-1-1	SHIELD CASE	
	CN1	PEMC0712-114	PIN HEADER	
	CN2	PEMC0712-113	PIN HEADER	
	CN3	PEMC0712-113	PIN HEADER	

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TERMINAL BOARD ASSEMBLY <06>

REF No.	PART No.	PART NAME, DESCRIPTION
PWBA1	PB20599A	TERMINAL BOARD ASSEMBLY
TB1	PU60677	CONNECTOR BOARD ASSEMBLY

#⚠	REF No.	PART No.	PART NAME, DESCRIPTION	
	IC1	LA7151	IC	
	D1	1SS133	DIODE	
		or MA165	DIODE	
	D2	1SS133	DIODE	
		or MA165	DIODE	
	D3	1SS133	DIODE	
		or MA165	DIODE	
	D4	1SS133	DIODE	
		or MA165	DIODE	
	R1	QRD161J-271	RESISTOR	270Ω,1/6W
	R2	QRD161J-103	RESISTOR	10KΩ,1/6W
	R3	QRD161J-103	RESISTOR	10KΩ,1/6W
	R4	QRD161J-362	RESISTOR	3.6KΩ,1/6W
	R5	QRD161J-362	RESISTOR	3.6KΩ,1/6W
	R6	QRD161J-393	RESISTOR	39KΩ,1/6W
	R7	QRD161J-393	RESISTOR	39KΩ,1/6W
	R8	QRD161J-183	RESISTOR	18KΩ,1/6W
	R9	QRD161J-183	RESISTOR	18KΩ,1/6W
	R10	QRD161J-103	RESISTOR	10KΩ,1/6W
	R11	QRD161J-103	RESISTOR	10KΩ,1/6W
	R12	QRD161J-271	RESISTOR	270Ω,1/6W
	R13	QRD161J-271	RESISTOR	270Ω,1/6W
	R14	QRD161J-271	RESISTOR	270Ω,1/6W
	R15	QRD161J-271	RESISTOR	270Ω,1/6W
	C1	QEK61CM-476	E CAPACITOR	47μF,16V
	C3	QEK61CM-106	E CAPACITOR	10μF,16V
	C4	QEK61CM-106	E CAPACITOR	10μF,16V
	C7	QEK61CM-106	E CAPACITOR	10μF,16V
	C8	QEK61CM-106	E CAPACITOR	10μF,16V
	CL1	PU56729-2	WIRE CLAMP	
	JP1	PU60894-115	TERMINAL	
	SCW1	SDSF2608Z	SCREW, X3, FOR TERMINAL	
	CN1	PU58844-107	CONNECTOR	

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TUNER/IF UNIT BOARD ASSEMBLY <08>

REF No.	PART No.	PART NAME, DESCRIPTION
PWBA	PB10677A	TUNER/IF UNIT BOARD ASSEMBLY

#⚠ REF No.	PART No.	PART NAME, DESCRIPTION	
⚠ TNR1	PERF0066-02	UHF/VHF TUNER	
IC1	LA7577V	IC	
Q1	2SB810H,J	TRANSISTOR	
Q2	2SD1450S,T	TRANSISTOR	
Q3	2SD1450S,T	TRANSISTOR	
Q4	2SD1819A(RS)	TRANSISTOR	
Q5	2SK381(C)	FE TRANSISTOR	
Q6	DTC114EU	TRANSISTOR	
Q15	2SD1819A(RS)	TRANSISTOR	
Q16	DTC144EU	TRANSISTOR	
Q18	DTC144EU	TRANSISTOR	
Q19	2SD1819A(RS)	TRANSISTOR	
Q20	NRSA63J-0R0N	RESISTOR	0Ω,1/16W
Q21	2SA1532(C)	TRANSISTOR	
Q30	2SA1323(BC)	TRANSISTOR	
Q31	2SC3354	TRANSISTOR	
Q32	2SC3354	TRANSISTOR	
Q33	2SC3313BCTA	TRANSISTOR	
D2	HZT33-02	ZENER DIODE	
D4	MTZ11B	ZENER DIODE	
R2	NRSA63J-0R0N	RESISTOR	0Ω,1/16W
R3	NRSA63J-0R0N	RESISTOR	0Ω,1/16W
R13	NRSA63J-683N	RESISTOR	68KΩ,1/16W
R19	NRSA63J-183N	RESISTOR	18KΩ,1/16W
R23	QRD161J-151	RESISTOR	150Ω,1/6W
R32	NRSA63J-182N	RESISTOR	1.8KΩ,1/16W
R34	NRSA63J-153N	RESISTOR	15KΩ,1/16W
R41	NRSA63J-102N	RESISTOR	1KΩ,1/16W
R45	NRSA63J-750N	RESISTOR	75Ω,1/16W
R51	QRD161J-331	RESISTOR	330Ω,1/6W
R52	NRSA63J-101N	RESISTOR	100Ω,1/16W
R54	NRSA63J-824N	RESISTOR	820KΩ,1/16W
R59	NRSA63J-151N	RESISTOR	150Ω,1/16W
R61	NRSA63J-151N	RESISTOR	150Ω,1/16W
R63	NRSA63J-112N	RESISTOR	1.1KΩ,1/16W
R65	NRSA63J-910N	RESISTOR	91Ω,1/16W
R66	NRSA63J-911N	RESISTOR	910Ω,1/16W
R67	NRSA63J-331N	RESISTOR	330Ω,1/16W
R69	NRSA63J-561N	RESISTOR	560Ω,1/16W
R71	NRSA63J-822N	RESISTOR	8.2KΩ,1/16W
R72	QVZ3518-103	V RESISTOR, RF AGC	10KΩ
R74	NRSA63J-182N	RESISTOR	1.8KΩ,1/16W
R76	NRSA63J-103N	RESISTOR	10KΩ,1/16W
R78	NRSA63J-0R0N	RESISTOR	0Ω,1/16W

#⚠ REF No.	PART No.	PART NAME, DESCRIPTION	
R82	QRSA08J-361YN	RESISTOR	360Ω,1/10W
R83	NRSA63J-242N	RESISTOR	2.4KΩ,1/16W
R84	NRSA63J-105N	RESISTOR	1MΩ,1/16W
R85	NRSA63J-623N	RESISTOR	62KΩ,1/16W
R86	NRSA63J-273N	RESISTOR	27KΩ,1/16W
R87	NRSA63J-681N	RESISTOR	680Ω,1/16W
R89	NRSA63J-471N	RESISTOR	470Ω,1/16W
R91	QRSA08J-184YN	RESISTOR	180KΩ,1/10W
R92	NRSA63J-223N	RESISTOR	22KΩ,1/16W
R93	NRSA63J-123N	RESISTOR	12KΩ,1/16W
R94	NRSA63J-822N	RESISTOR	8.2KΩ,1/16W
R95	NRSA63J-272N	RESISTOR	2.7KΩ,1/16W
R96	NRSA63J-392N	RESISTOR	3.9KΩ,1/16W
R97	NRSA63J-822N	RESISTOR	8.2KΩ,1/16W
R105	NRSA63J-682N	RESISTOR	6.8KΩ,1/16W
R110	NRSA63J-153N	RESISTOR	15KΩ,1/16W
R120	QRD161J-103	RESISTOR	10KΩ,1/6W
R121	NRSA63J-222N	RESISTOR	2.2KΩ,1/16W
R122	QRSA08J-102YN	RESISTOR	1KΩ,1/10W
R123	NRSA63J-222N	RESISTOR	2.2KΩ,1/16W
R124	NRSA63J-221N	RESISTOR	220Ω,1/16W
R125	NRSA63J-181N	RESISTOR	180Ω,1/16W
R126	QRSA08J-0R0Y	RESISTOR	0Ω,1/10W
R127	QRSA08J-101YN	RESISTOR	100Ω,1/10W
R128	QRSA08J-101YN	RESISTOR	100Ω,1/10W
R129	NRSA63J-103N	RESISTOR	10KΩ,1/16W
R130	NRSA63J-182N	RESISTOR	1.8KΩ,1/16W
R131	NRSA63J-470N	RESISTOR	47Ω,1/16W
R132	NRSA63J-222N	RESISTOR	2.2KΩ,1/16W
R133	NRSA63J-101N	RESISTOR	100Ω,1/16W
R134	QRSA08J-151YN	RESISTOR	150Ω,1/10W
R135	QRSA08J-122YN	RESISTOR	1.2KΩ,1/10W
C2	NCS31HJ-471A	CAPACITOR	470pF,50V
C3	QCBB1HK-102	CAPACITOR	0.001μF,50V
C5	QETF1CM-476	E CAPACITOR	47μF,16V
C6	NCB31HK-102A	CAPACITOR	0.001μF,50V
C8	QETF1HM-106	E CAPACITOR	10μF,50V
C12	QETF1CM-476	E CAPACITOR	47μF,16V
C16	QETF1HM-335	E CAPACITOR	3.3μF,50V
C20	QETF1CM-476	E CAPACITOR	47μF,16V
C34	NCT06CH-3R0A	CAPACITOR	3pF,50V
C35	NCT06CH-4R0A	CAPACITOR	4pF,50V
C37	NCB31HK-102A	CAPACITOR	0.001μF,50V
C38	NCB31HK-102A	CAPACITOR	0.001μF,50V
C39	NCB31HK-102A	CAPACITOR	0.001μF,50V
C41	NCF31HZ-103A	CAPACITOR	0.01μF,50V
C42	QETF1CM-476	E CAPACITOR	47μF,16V
C43	NCB31HK-222A	CAPACITOR	0.0022μF,50V
C44	QETF1CM-476	E CAPACITOR	47μF,16V
C47	QFN31HK-683	M CAPACITOR	0.068μF,50V
C48	NCF31HZ-103A	CAPACITOR	0.01μF,50V
C50	QETF1HM-474	E CAPACITOR	0.47μF,50V

#△ REF No.	PART No.	PART NAME, DESCRIPTION	
C51	NCS31HJ-750A	CAPACITOR	75pF,50V
C53	NCS31HJ-120A	CAPACITOR	12pF,50V
C55	NCB31HK-222A	CAPACITOR	0.0022μF,50V
C56	QETC1CM-336	E CAPACITOR	33μF,16V
C58	QCYA1HK-473	CAPACITOR	0.047μF,50V
C59	NCT06CH-510A	CAPACITOR	51pF,50V
C60	NCF31HZ-473A	CAPACITOR	0.047μF,50V
C61	NCS31HJ-331A	CAPACITOR	330pF,50V
C62	QETF1HM-224	E CAPACITOR	0.22μF,50V
C63	NCF31HZ-103A	CAPACITOR	0.01μF,50V
C68	QETF1HM-106	E CAPACITOR	10μF,50V
C69	NCB31HK-222A	CAPACITOR	0.0022μF,50V
C71	QETC1HM-104	E CAPACITOR	0.1μF,50V
C72	NCB31HK-472A	CAPACITOR	0.0047μF,50V
C100	NCF31HZ-103A	CAPACITOR	0.01μF,50V
C103	NCS31HJ-221A	CAPACITOR	220pF,50V
C120	NCB31HK-102A	CAPACITOR	0.001μF,50V
C121	NCB31HK-102A	CAPACITOR	0.001μF,50V
C122	NCB31HK-102A	CAPACITOR	0.001μF,50V
C123	NCB31HK-102A	CAPACITOR	0.001μF,50V
C124	NCB31HK-102A	CAPACITOR	0.001μF,50V
C125	QCYA1HK-102	CAPACITOR	0.001μF,50V
C126	QCYA1HK-102	CAPACITOR	0.001μF,50V
C127	NCB31HK-103A	CAPACITOR	0.01μF,50V
C128	NCB31HK-103A	CAPACITOR	0.01μF,50V
L2	PU60025-1R1	COIL	1.1μH
L3	PU60025-1R5	COIL	1.5μH
L4	PU60025-1R0	COIL	1μH
L5	PU60025-1R0	COIL	1μH
L6	PU59152-6R8J	COIL	6.8μH
L7	PU59152-6R8J	COIL	6.8μH
L8	PU59152-8R2J	COIL	8.2μH
L9	PU59152-120J	COIL	12μH
L10	PU59152-101J	COIL	100μH
L11	PU59152-220J	COIL	22μH
CF1	PU32990-2	CERAMIC FILTER	
CF3	PU49295	CERAMIC FILTER	
CF4	PU49295-2	N FILTER	
SAW1	PU35557-7	SAW FILTER	
SAW2	PU60765	SAW FILTER	
T1	PELN0444	IF.TRANSFORMER, VCO	
T3	PELN0442	COIL, FM DETECT	
T4	PELN0449	SOUND TRAP	
SLD1	PQ33906-1-4	SHIELD PLATE	
SLD2	PQ34595	SHIELD CASE	

#△ REF No.	PART No.	PART NAME, DESCRIPTION
CN1	PEMC0825-009	CONNECTOR (BOARD TO BOARD)
CN2	PEMC0825-009	CONNECTOR (BOARD TO BOARD)
CN9	PEMC0949-003	HOUSING

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AUDIO UNIT BOARD ASSEMBLY <09>

PWBA	PB10613C	AUDIO UNIT BOARD ASSEMBLY	
IC1	JCP0038	IC	
Q1	2SC2412K(R)	TRANSISTOR	
Q2	2SC2412K(R)	TRANSISTOR	
D1	DAN202K	DIODE	
	or MA151WK	DIODE	
R1	NRSA63J-475N	RESISTOR	4.7MΩ,1/16W
R2	NRSA63J-511N	RESISTOR	510Ω,1/16W
R3	NRSA63J-472N	RESISTOR	4.7KΩ,1/16W
R4	NRSA63J-513N	RESISTOR	51KΩ,1/16W
R5	NVP1301-473NU	V RESISTOR.L REC LEVEL	47KΩ
R6	NRSA63J-0R0N	RESISTOR	0Ω,1/16W
R8	NRSA63J-822N	RESISTOR	8.2KΩ,1/16W
R9	NRSA63J-103N	RESISTOR	10KΩ,1/16W
R10	NRSA63J-103N	RESISTOR	10KΩ,1/16W
R11	NVP1301-153NZ	V RESISTOR.L CARRIER	15KΩ
R12	NRSA63J-105N	RESISTOR	1MΩ,1/16W
R13	NRSA63J-103N	RESISTOR	10KΩ,1/16W
R14	NRSA63J-183N	RESISTOR	18KΩ,1/16W
R16	NRSA63J-0R0N	RESISTOR	0Ω,1/16W
R18	NRSA63J-303N	RESISTOR	30KΩ,1/16W
R19	NRSA63J-222N	RESISTOR	2.2KΩ,1/16W
R20	NRSA63J-222N	RESISTOR	2.2KΩ,1/16W
R21	NRSA63J-103N	RESISTOR	10KΩ,1/16W
R22	NRSA63J-102N	RESISTOR	1KΩ,1/16W
R23	NRSA63J-102N	RESISTOR	1KΩ,1/16W
R24	NRSA63J-752N	RESISTOR	7.5KΩ,1/16W
R25	NVP1301-153NZ	V RESISTOR.R CARRIER	15KΩ
R26	NRSA63J-103N	RESISTOR	10KΩ,1/16W
R27	NRSA63J-822N	RESISTOR	8.2KΩ,1/16W
R29	NRSA63J-0R0N	RESISTOR	0Ω,1/16W
R30	NVP1301-473NU	V RESISTOR.L REC LEVEL	47KΩ
R31	NRSA63J-513N	RESISTOR	51KΩ,1/16W
R32	NRSA63J-472N	RESISTOR	4.7KΩ,1/16W
R33	NRSA63J-511N	RESISTOR	510Ω,1/16W
R34	NRSA63J-475N	RESISTOR	4.7MΩ,1/16W
R35	NRSA63J-514N	RESISTOR	510KΩ,1/16W

#⚠ REF No.	PART No.	PART NAME, DESCRIPTION	
R36	NRSA63J-103N	RESISTOR	10KΩ,1/16W
R38	NRSA63J-103N	RESISTOR	10KΩ,1/16W
R41	NRSA63J-101N	RESISTOR	100Ω,1/16W
R42	NRSA63J-101N	RESISTOR	100Ω,1/16W
R43	NRSA63J-103N	RESISTOR	10KΩ,1/16W
R44	NRSA63J-154N	RESISTOR	150KΩ,1/16W
R45	NRSA63J-102N	RESISTOR	1KΩ,1/16W
R46	NRSA63J-103N	RESISTOR	10KΩ,1/16W
R47	NRSA63J-154N	RESISTOR	150KΩ,1/16W
R48	NRSA63J-102N	RESISTOR	1KΩ,1/16W
R49	NRSA63J-334N	RESISTOR	330KΩ,1/16W
R50	NRSA63J-473N	RESISTOR	47KΩ,1/16W
R51	NRSA63J-473N	RESISTOR	47KΩ,1/16W
R52	NRSA63J-104N	RESISTOR	100KΩ,1/16W
R54	NRSA63J-102N	RESISTOR	1KΩ,1/16W
R55	NRSA63J-102N	RESISTOR	1KΩ,1/16W
R56	NRSA63J-101N	RESISTOR	100Ω,1/16W
R57	NRSA63J-101N	RESISTOR	100Ω,1/16W
C1	NCB31EK-103A	CAPACITOR	0.01μF,25V
C2	QETC1AM-336	E CAPACITOR	33μF,10V
C3	QFLC1HJ-473Z	M CAPACITOR	0.047μF,50V
C4	QETC1HM-225	E CAPACITOR	2.2μF,50V
C5	QFLC1HJ-333Z	M CAPACITOR	0.033μF,50V
C6	QETC1AM-476	E CAPACITOR	47μF,10V
C7	QETC1CM-106	E CAPACITOR	10μF,16V
C8	QFLC1HJ-103Z	M CAPACITOR	0.01μF,50V
C9	QETC0JM-107	E CAPACITOR	100μF,6.3V
C10	NCB31HK-102A	CAPACITOR	0.001μF,50V
C11	QFLC1HJ-104Z	M CAPACITOR	0.1μF,50V
C12	QFLC1HJ-223Z	M CAPACITOR	0.022μF,50V
C13	NCB31HK-821A	CAPACITOR	820pF,50V
C14	QFLC1HJ-392Z	M CAPACITOR	0.0039μF,50V
C15	QFLC1HJ-333Z	M CAPACITOR	0.033μF,50V
C16	QETC1HM-105	E CAPACITOR	1μF,50V
C18	NCB31HK-561A	CAPACITOR	560pF,50V
C19	NCF31CZ-104A	CAPACITOR	0.1μF,16V
	or NCF31EZ-104A	CAPACITOR	0.1μF,25V
C20	NCS31HJ-101A	CAPACITOR	100pF,50V
C21	NCS31HJ-101A	CAPACITOR	100pF,50V
C22	QFLC1HJ-392Z	M CAPACITOR	0.0039μF,50V
C23	NCB31HK-821A	CAPACITOR	820pF,50V
C24	QFLC1HJ-223Z	M CAPACITOR	0.022μF,50V
C25	QFLC1HJ-104Z	M CAPACITOR	0.1μF,50V
C26	NCB31HK-102A	CAPACITOR	0.001μF,50V
C27	QETC0JM-107	E CAPACITOR	100μF,6.3V
C28	QFLC1HJ-103Z	M CAPACITOR	0.01μF,50V
C29	QETC1CM-106	E CAPACITOR	10μF,16V
C30	QETC1AM-476	E CAPACITOR	47μF,10V
C31	QFLC1HJ-333Z	M CAPACITOR	0.033μF,50V
C32	QETC1HM-225	E CAPACITOR	2.2μF,50V
C33	QFLC1HJ-473Z	M CAPACITOR	0.047μF,50V
C34	QETC1AM-336	E CAPACITOR	33μF,10V
C35	NCB31EK-103A	CAPACITOR	0.01μF,25V
C36	QETC1CM-106	E CAPACITOR	10μF,16V
C37	QETC1CM-106	E CAPACITOR	10μF,16V

#⚠ REF No.	PART No.	PART NAME, DESCRIPTION	
C38	QETC1CM-226	E CAPACITOR	22μF,16V
C39	QETC1CM-106	E CAPACITOR	10μF,16V
C40	QETC1CM-106	E CAPACITOR	10μF,16V
C41	QETC0JM-107	E CAPACITOR	100μF,6.3V
C42	QETC0JM-107	E CAPACITOR	100μF,6.3V
C43	QETC1AM-107	E CAPACITOR	100μF,10V
C44	QETC1CM-476	E CAPACITOR	47μF,16V
C45	QETC1AM-476	E CAPACITOR	47μF,10V
C46	QETC1CM-106	E CAPACITOR	10μF,16V
C47	NCB31EK-103A	CAPACITOR	0.01μF,25V
C48	QETC1CM-106	E CAPACITOR	10μF,16V
C49	QETC0JM-476	E CAPACITOR	47μF,6.3V
C50	NCF31CZ-104A	CAPACITOR	0.1μF,16V
	or NCF31EZ-104A	CAPACITOR	0.1μF,25V
C51	QFLC1HJ-822Z	M CAPACITOR	0.0082μF,50V
C52	QFLC1HJ-822Z	M CAPACITOR	0.0082μF,50V
C53	QETC1HM-225	E CAPACITOR	2.2μF,50V
C54	QETC1CM-106	E CAPACITOR	10μF,16V
C55	NCF31CZ-104A	CAPACITOR	0.1μF,16V
	or NCF31EZ-104A	CAPACITOR	0.1μF,25V
C56	QETC1HM-225	E CAPACITOR	2.2μF,50V
C57	QETC1CM-106	E CAPACITOR	10μF,16V
C58	NCF31CZ-104A	CAPACITOR	0.1μF,16V
	or NCF31EZ-104A	CAPACITOR	0.1μF,25V
C59	QETC1HM-105	E CAPACITOR	1μF,50V
C60	NCF31CZ-104A	CAPACITOR	0.1μF,16V
	or NCF31EZ-104A	CAPACITOR	0.1μF,25V
C61	NCF31CZ-104A	CAPACITOR	0.1μF,16V
	or NCF31EZ-104A	CAPACITOR	0.1μF,25V
L1	PELN0530-101JZ	COIL	100μH
L2	PELN0530-101JZ	COIL	100μH
L3	PELN0530-101JZ	COIL	100μH
BPF1	PU60610	BPF(1.4MHZ)	
	or PU60610-S	BPF(1.4MHZ)	
BPF2	PU60611	BPF(1.8MHZ)	
	or PU60611-S	BPF(1.8MHZ)	
JP1	PEMC0919-126	PIN HEADER	
JP2	PEMC0919-126	PIN HEADER	

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AUDIO CONTROL HEAD BOARD <12>

PWB1	PB40068	AUDIO CONTROL HEAD BOARD
CN1	PU58844-107	CONNECTOR

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DEMODULATOR BOARD ASSEMBLY <14>

#△ REF No.	PART No.	PART NAME, DESCRIPTION	
PWBA	PB10679A-01	DEMODULATOR BOARD ASSEMBLY	
IC208	TDA8415	IC	
	or TDA8416	IC	
IC209	UPC1391H	IC	
Q206	FMA3	TRANSISTOR	
Q208	DTA114TU	TRANSISTOR	
Q209	2SA1532(C)	TRANSISTOR	
Q210	DTC114EU	TRANSISTOR	
Q211	2SD1450S,T	TRANSISTOR	
D201	DAP202U	DIODE	
R255	NRSA63J-103N	RESISTOR	10KΩ,1/16W
R256	NRSA63J-103N	RESISTOR	10KΩ,1/16W
R257	NRSA63J-101N	RESISTOR	100Ω,1/16W
R260	NRSA63J-103N	RESISTOR	10KΩ,1/16W
R261	NRSA63J-122N	RESISTOR	1.2KΩ,1/16W
R262	NRSA63J-122N	RESISTOR	1.2KΩ,1/16W
R263	NRSA63J-103N	RESISTOR	10KΩ,1/16W
R264	QVZ3518-103	V RESISTOR,STEREO SEPA	10KΩ
R266	NRSA63J-101N	RESISTOR	100Ω,1/16W
R272	NRSA63J-391N	RESISTOR	390Ω,1/16W
R273	NRSA63J-271N	RESISTOR	270Ω,1/16W
R275	NRSA63J-561N	RESISTOR	560Ω,1/16W
R276	NRSA63J-471N	RESISTOR	470Ω,1/16W
R277	NRSA63J-331N	RESISTOR	330Ω,1/16W
B276	NRSA63J-101N	RESISTOR	100Ω,1/16W
C201	NCF31HZ-473A	CAPACITOR	0.047μF,50V
C253	QEKF1HM-225	E CAPACITOR	2.2μF,50V
C254	QETC1HM-225	E CAPACITOR	2.2μF,50V
C255	QEKF1CM-226	E CAPACITOR	22μF,16V
C257	NCF31HZ-473A	CAPACITOR	0.047μF,50V
C258	QEKF1CM-226	E CAPACITOR	22μF,16V
C259	QCFA1CZ-224	CAPACITOR	0.22μF,16V
C260	QEKF1HM-225	E CAPACITOR	2.2μF,50V
C261	QEKF1HM-225	E CAPACITOR	2.2μF,50V
C264	QERF1CM-336	E CAPACITOR	33μF,16V
C265	QCYA1HK-473	CAPACITOR	0.047μF,50V
C266	NCT06CH-220A	CAPACITOR	22pF,50V
C267	QCYA1HK-473	CAPACITOR	0.047μF,50V
C268	QCYA1HK-473	CAPACITOR	0.047μF,50V
C269	QCYA1HK-473	CAPACITOR	0.047μF,50V
C272	QEKF1CM-226	E CAPACITOR	22μF,16V
C273	QEKF1CM-226	E CAPACITOR	22μF,16V
C278	QCYA1HK-222	CAPACITOR	0.0022μF,50V
C295	NCB31HK-221A	CAPACITOR	220pF,50V
C296	NCB31HK-221A	CAPACITOR	220pF,50V
C307	NCF31HZ-473A	CAPACITOR	0.047μF,50V
CF201	PU52775	CERAMIC FILTER	
CF202	PU52775-2	CERAMIC FILTER	
CF203	PEVB0481	C DISCRIMINATER	
X202	PEVB0479	CRYSTAL RESONATOR, 10MHZ	
K206	PELN0662-Z	FERRATE BEADS	
K207	PELN0662-Z	FERRATE BEADS	
K209	PELN0662-Z	FERRATE BEADS	
CL1	PU59311	WIRE CLAMP, X2	
CN201	PU59555-3	CONNECTOR	
CN202	PEMC0949-003	HOUSING	
CN203	PU59555-3	CONNECTOR	
CN204	PEMC0949-003	HOUSING	

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TIMER BOARD ASSEMBLY <20>

#△ REF No.	PART No.	PART NAME, DESCRIPTION
PWBA	PB10683A1	TIMER BOARD ASSEMBLY
IC1	UPD75217CW-157	IC
IC2	IC-PST523H-2	IC
Q1	2SC3199(G)	TRANSISTOR
	or 2SC3311A(RS)	TRANSISTOR
	or 2SC536SPA(FG)	TRANSISTOR
	or 2SC1740S(RS)	TRANSISTOR
D1	RD9.1ES-T1B2	ZENER DIODE
D2	1SS133	DIODE
D3	1SS133	DIODE
D4	11ES2	DIODE
D5	11ES2	DIODE
D6	1SS133	DIODE

#⚠ REF No.	PART No.	PART NAME, DESCRIPTION	
R1	QRD161J-103	RESISTOR	10KΩ,1/6W
R4	QRD161J-682	RESISTOR	6.8KΩ,1/6W
R5	QRD161J-333	RESISTOR	33KΩ,1/6W
R6	QRD161J-333	RESISTOR	33KΩ,1/6W
R7	QRD161J-102	RESISTOR	1KΩ,1/6W
R8	QRD161J-103	RESISTOR	10KΩ,1/6W
R9	QRD161J-103	RESISTOR	10KΩ,1/6W
R10	QRD161J-103	RESISTOR	10KΩ,1/6W
R11	QRD161J-103	RESISTOR	10KΩ,1/6W
R12	QRD161J-333	RESISTOR	33KΩ,1/6W
R13	QRD161J-271	RESISTOR	270Ω,1/6W
R14	QRD161J-271	RESISTOR	270Ω,1/6W
R15	QRD161J-103	RESISTOR	10KΩ,1/6W
R16	QRD161J-103	RESISTOR	10KΩ,1/6W
R17	QRD161J-472	RESISTOR	4.7KΩ,1/6W
R25	QRD161J-103	RESISTOR	10KΩ,1/6W
R26	QRD161J-103	RESISTOR	10KΩ,1/6W
R30	QRD161J-224	RESISTOR	220KΩ,1/6W
R31	QRD161J-151	RESISTOR	150Ω,1/6W
R32	QRD161J-271	RESISTOR	270Ω,1/6W
R33	QRD161J-271	RESISTOR	270Ω,1/6W
R40	QRD161J-271	RESISTOR	270Ω,1/6W
R41	QRD161J-103	RESISTOR	10KΩ,1/6W
R42	QRD161J-561	RESISTOR	560Ω,1/6W
R43	QRD161J-472	RESISTOR	4.7KΩ,1/6W
R44	QRD161J-472	RESISTOR	4.7KΩ,1/6W
R45	QRD161J-472	RESISTOR	4.7KΩ,1/6W
R50	QRD161J-103	RESISTOR	10KΩ,1/6W
R51	QRD161J-103	RESISTOR	10KΩ,1/6W
R52	QRD161J-103	RESISTOR	10KΩ,1/6W
R56	QRD161J-472	RESISTOR	4.7KΩ,1/6W
R57	QRD161J-472	RESISTOR	4.7KΩ,1/6W
R58	QRD161J-472	RESISTOR	4.7KΩ,1/6W
R60	QRD161J-472	RESISTOR	4.7KΩ,1/6W
R61	QRD161J-333	RESISTOR	33KΩ,1/6W
R62	QRD161J-103	RESISTOR	10KΩ,1/6W
RA1	QRB047J-333	RESISTOR ARRAY	33KΩ,4W
	or QRB049J-333	RESISTOR ARRAY	33KΩ,4W
RA2	QRB047J-104	NETWORK RESISTOR	100KΩ,4W
	or QRB049J-104	NETWORK RESISTOR	100KΩ,4W
RA3	QRB077J-104	RESISTOR ARRAY	100KΩ,7W
	or QRB079J-104	RESISTOR ARRAY	100KΩ,7W
C3	QCVB1CN-103	CAPACITOR	0.01μF,16V
C4	QER61CM-106	E CAPACITOR	10μF,16V
C5	PECA0810-105	E CAPACITOR, BACK UP	
	or QEA40HZ-105	E CAPACITOR (DOUBLE)	1F,5.5V
C6	QAT3120-200	TRIMMER CAPACITOR,CLOCK	20pF
C7	QCSB1HJ-120	CAPACITOR	12pF,50V
C11	QER61CM-106	E CAPACITOR	10μF,16V
C13	QCVB1CN-103	CAPACITOR	0.01μF,16V
C15	QCBB1HJ-101	CAPACITOR	100pF,50V

#⚠ REF No.	PART No.	PART NAME, DESCRIPTION	
C16	QCBB1HJ-101	CAPACITOR	100pF,50V
C17	QCF11HP-473	CAPACITOR	0.047μF,50V
C18	QER61CM-106	E CAPACITOR	10μF,16V
C19	QER61CM-106	E CAPACITOR	10μF,16V
C21	QCVB1CN-103	CAPACITOR	0.01μF,16V
C22	QCBB1HJ-151	CAPACITOR	150pF,50V
⚠ X1	PU60226-4	CRYSTAL RESONATOR	
K1	PU60281-5	FERRATE BEADS	
CN1	PU59555-9	CONNECTOR, (1-9)	
CN2	PU61044-12	CONNECTOR	
CN3	PU59555-6	CONNECTOR	
CN4	PU59555-3	CONNECTOR	
CN6	PU61044-8	WIRE TRAP	
⚠ CP1	ICP-F10	CIRCUIT PROTECTOR	

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SW/DISPLAY BOARD ASSEMBLY <28>

PWBA	PB10683A2	SWITCH/DISPLAY BOARD ASSEMBLY	
IC101	MSC7112-01SS	IC	
Q101	2SK658	FE TRANSISTOR	
D102	RD3.6ES-T1B1	ZENER DIODE	
D201	SLH-34MC3F	LE DIODE, AUTO TRACK	
D203	SLH-34VC3F	LE DIODE, STEREO	
D204	SLH-34MC3F	LE DIODE, BILINGUAL	
D229	1SS133	DIODE, REPEAT	
R101	QRD161J-102	RESISTOR	1KΩ,1/6W
R102	QRD161J-102	RESISTOR	1KΩ,1/6W
R103	QRD161J-222	RESISTOR	2.2KΩ,1/6W
R104	QRD161J-273	RESISTOR	27KΩ,1/6W
R105	QRD161J-333	RESISTOR	33KΩ,1/6W
R107	QRD161J-102	RESISTOR	1KΩ,1/6W
R201	QRD161J-121	RESISTOR	120Ω,1/6W
R203	QRD161J-121	RESISTOR	120Ω,1/6W
R204	QRD161J-121	RESISTOR	120Ω,1/6W

#△ REF No.	PART No.	PART NAME, DESCRIPTION	
C101	QCBB1HJ-101	CAPACITOR	100pF,50V
C102	QETC1HM-104	E CAPACITOR	0.1μF,50V
C103	QER60JM-107	E CAPACITOR	100μF,6.3V
C104	QCVB1CN-103	CAPACITOR	0.01μF,16V
C105	QER61VM-106	E CAPACITOR	10μF,35V
C115	QCSB1HJ-330	CAPACITOR	33pF,50V
C116	QCSB1HJ-330	CAPACITOR	33pF,50V
C117	QCF11HP-473	CAPACITOR	0.047μF,50V
L101	PU59152-390J	COIL	39μH
S2	PESW0525-02Z	TACT SWITCH, STOP/EJECT	
	or PU60392-2-2	TACT SWITCH	
	or PU60975-2Z	TACT SWITCH	
S3	PESW0525-02Z	TACT SWITCH, FF	
	or PU60392-2-2	TACT SWITCH	
	or PU60975-2Z	TACT SWITCH	
S4	PESW0525-02Z	TACT SWITCH, REW	
	or PU60392-2-2	TACT SWITCH	
	or PU60975-2Z	TACT SWITCH	
S6	PESW0525-02Z	TACT SWITCH, REC/ITR	
	or PU60392-2-2	TACT SWITCH	
	or PU60975-2Z	TACT SWITCH	
S7	PESW0525-02Z	TACT SWITCH, PLAY	
	or PU60392-2-2	TACT SWITCH	
	or PU60975-2Z	TACT SWITCH	
S8	PESW0525-02Z	TACT SWITCH, PAUSE	
	or PU60392-2-2	TACT SWITCH	
	or PU60975-2Z	TACT SWITCH	
S9	PESW0525-02Z	TACT SWITCH, START+	
	or PU60392-2-2	TACT SWITCH	
	or PU60975-2Z	TACT SWITCH	
S10	PESW0525-02Z	TACT SWITCH, START–	
	or PU60392-2-2	TACT SWITCH	
	or PU60975-2Z	TACT SWITCH	
S11	PESW0525-02Z	TACT SWITCH, STOP+	
	or PU60392-2-2	TACT SWITCH	
	or PU60975-2Z	TACT SWITCH	
S12	PESW0525-02Z	TACT SWITCH, STOP–	
	or PU60392-2-2	TACT SWITCH	
	or PU60975-2Z	TACT SWITCH	
S13	PESW0525-02Z	TACT SWITCH, MIX	
	or PU60392-2-2	TACT SWITCH	
	or PU60975-2Z	TACT SWITCH	
S14	PESW0525-02Z	TACT SWITCH, SIMUL	
	or PU60392-2-2	TACT SWITCH	
	or PU60975-2Z	TACT SWITCH	
S15	PESW0525-02Z	TACT SWITCH, A.DUB	
	or PU60392-2-2	TACT SWITCH	
	or PU60975-2Z	TACT SWITCH	
S21	PESW0525-02Z	TACT SWITCH, CANCEL	
	or PU60392-2-2	TACT SWITCH	
	or PU60975-2Z	TACT SWITCH	
S22	PESW0525-02Z	TACT SWITCH, SP/LP	
	or PU60392-2-2	TACT SWITCH	
	or PU60975-2Z	TACT SWITCH	

#△ REF No.	PART No.	PART NAME, DESCRIPTION
S24	PESW0525-02Z	TACT SWITCH, TIMER
	or PU60392-2-2	TACT SWITCH
	or PU60975-2Z	TACT SWITCH
S25	PESW0525-02Z	TACT SWITCH, CH+
	or PU60392-2-2	TACT SWITCH
	or PU60975-2Z	TACT SWITCH
S26	PESW0525-02Z	TACT SWITCH, CH–
	or PU60392-2-2	TACT SWITCH
	or PU60975-2Z	TACT SWITCH
S28	PESW0525-02Z	TACT SWITCH, DISP OFF
	or PU60392-2-2	TACT SWITCH
	or PU60975-2Z	TACT SWITCH
S405	PESW0559-03	SLIDE SWITCH, REPEAT
FDP1	PEDP0079	FLUORESCENT DISPLAY PANEL
HD1	PQM30038-2-2	LED HOLDER, X3
HD2	PQ34413	FDP HOLDER(L)
HD3	PQ34414	FDP HOLDER(R)
CN7	PU59555-5	CONNECTOR
CN8	PU61044-104	WIRE TRAP
CN9	PU59555-3	CONNECTOR

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IFR BOARD ASSEMBLY <34>

PWBA	PB20598A2	IFR BOARD ASSEMBLY
IC1	GP1U541X	IR DETECT UNIT
CN10	PU59555-3	CONNECTOR

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SW/JACK BOARD ASSEMBLY <37>

PWBA	PB20598A	SWITCH/JACK BOARD ASSEMBLY
D1	SLR-55VC3F	LE DIODE, OPERATE
D3	1SS133	DIODE
	or MA165	DIODE
D4	1SS133	DIODE
	or MA165	DIODE

#⚠	REF No.	PART No.	PART NAME, DESCRIPTION	
	R1	PU60299-2	V RESISTOR, H.P.LEVEL	
	R2	QRD161J-103	RESISTOR	10KΩ,1/6W
	R7	PERE0513	V RESISTOR, REC BALANCE	
	R8	PERE0534	V RESISTOR, REC MAIN	
	R9	PERE0514	V RESISTOR, MIC MIX	
	R10	QRD161J-271	RESISTOR	270Ω,1/6W
	LC1	PU59885-223	N FILTER	
	LC2	PU59885-223	N FILTER	
	LC3	PU59885-102	N FILTER	
	LC4	PU59885-102	N FILTER	
	S1	PU57551	TACT SWITCH	
		or PU53598-2	TACT SWITCH, OPERATE	
	K1	PU60281-5	FERRATE BEADS	
	CL1	PU56729-2	WIRE CLAMP, X2	
	HD1	PQM30038-1-2	LED HOLDER, FOR LED	
	JA1	PU60664	MINI JACK, H.PHONE	
	JA2	PU60664-3	MINI JACK, MIC	
	JA3	PU60664-7	MINI JACK, PAUSE-IN	
	JA4	PEMC0946	PIN JACK, FRONT AV	
	SPC1	PU59210-003	W.LOKING SPACER,X2, IFR BOARD	
	CN1	PU59555-5	CONNECTOR	
	CN2	PU59555-5	CONNECTOR	
	CN2	PW30218-05D6014	WIRE	
	CN3	PU58844-5	CONNECTOR	
	CN4	PU58844-2R	CONNECTOR	
	CN5	PU58844-2	CONNECTOR	
	CN6	PU58844-3R	CONNECTOR	
	CN7	PU59555-5	CONNECTOR	

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UPPER DRUM BOARD <41>

PWB	PDM3139	BOARD (UPPER DRUM)	

#⚠	REF No.	PART No.	PART NAME, DESCRIPTION	

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PRE/REC AMP BOARD ASSEMBLY <43>

#⚠	REF No.	PART No.	PART NAME, DESCRIPTION	
	PWBA	PB10592F	PRE/REC BOARD ASSEMBLY	
	IC1	BA7743FS	IC	
	IC201	AN3386NK-A	IC	
	Q1	DTA114EU	TRANSISTOR	
⚠	Q2	2SA1036K	TRANSISTOR	
	Q201	2SA1576(QRS)	TRANSISTOR	
	Q202	2SC4081(QRS)	TRANSISTOR	
	Q203	2SC4081(QRS)	TRANSISTOR	
	Q204	DTC144WU	TRANSISTOR	
	Q205	DTC144WU	TRANSISTOR	
	Q206	DTC144WU	TRANSISTOR	
	D2	DAN202U	DIODE	
	D201	1SS133	DIODE	
		or MA165	DIODE	
	D202	1SS133	DIODE	
		or MA165	DIODE	
	D203	MA141K	DIODE	
		or DA114	DIODE	
	D204	1SS133	DIODE	
		or MA165	DIODE	
	D205	1SS133	DIODE	
		or MA165	DIODE	
	R1	QRSA08J-224YN	RESISTOR	220KΩ,1/10W
⚠	R2	NRVA62D-120N	RESISTOR	12Ω,1/16W
	R3	QRSA08J-102YN	RESISTOR	1KΩ,1/10W
	R4	QRSA08J-152YN	RESISTOR	1.5KΩ,1/10W
	R5	QRSA08J-391YN	RESISTOR	390Ω,1/10W
	R6	QRSA08J-391YN	RESISTOR	390Ω,1/10W
	R7	QRSA08J-152YN	RESISTOR	1.5KΩ,1/10W
	R8	QRSA08J-472YN	RESISTOR	4.7KΩ,1/10W
	R9	QRSA08J-473YN	RESISTOR	47KΩ,1/10W
	R12	QRSA08J-473YN	RESISTOR	47KΩ,1/10W
	R16	QRSA08J-222YN	RESISTOR	2.2KΩ,1/10W
	R17	QRSA08J-103YN	RESISTOR	10KΩ,1/10W
	R18	QRSA08J-822YN	RESISTOR	8.2KΩ,1/10W
	R19	QRSA08J-472YN	RESISTOR	4.7KΩ,1/10W
	R20	QRSA08J-103YN	RESISTOR	10KΩ,1/10W
	R21	QRSA08J-561YN	RESISTOR	560Ω,1/10W
	R201	QRSA08J-102YN	RESISTOR	1KΩ,1/10W
	R202	QRSA08J-222YN	RESISTOR	2.2KΩ,1/10W

#⚠	REF No.	PART No.	PART NAME, DESCRIPTION	
	R203	QRSA08J-222YN	RESISTOR	2.2KΩ,1/10W
	R204	QRSA08J-391YN	RESISTOR	390Ω,1/10W
	R205	QRSA08J-391YN	RESISTOR	390Ω,1/10W
	R206	QRSA08J-821YN	RESISTOR	820Ω,1/10W
	R207	QRSA08J-222YN	RESISTOR	2.2KΩ,1/10W
	R208	QRSA08J-222YN	RESISTOR	2.2KΩ,1/10W
	R209	QRSA08J-681YN	RESISTOR	680Ω,1/10W
	R210	QRSA08J-821YN	RESISTOR	820Ω,1/10W
	R211	QRSA08J-122YN	RESISTOR	1.2KΩ,1/10W
	R212	QRSA08J-561YN	RESISTOR	560Ω,1/10W
	R214	QRSA08J-122YN	RESISTOR	1.2KΩ,1/10W
	R215	QRSA08J-562YN	RESISTOR	5.6KΩ,1/10W
	R216	QRSA08J-153YN	RESISTOR	15KΩ,1/10W
	R217	QRSA08J-562YN	RESISTOR	5.6KΩ,1/10W
	R218	QRSA08J-562YN	RESISTOR	5.6KΩ,1/10W
	R219	QRD161J-334	RESISTOR	330KΩ,1/6W
	R220	QRD161J-103	RESISTOR	10KΩ,1/6W
	R221	QRSA08J-393YN	RESISTOR	39KΩ,1/10W
	R223	NRVA62D-513N	RESISTOR	51KΩ,1/16W
		or QRSA08F-513	RESISTOR	51KΩ,1/10W
	R224	QRSA08J-105YN	RESISTOR	1MΩ,1/10W
	R225	QRSA08J-562YN	RESISTOR	5.6KΩ,1/10W
	R226	QRSA08J-271YN	RESISTOR	270Ω,1/10W
	R227	QRSA08J-361YN	RESISTOR	360Ω,1/10W
	R228	QRSA08J-331YN	RESISTOR	330Ω,1/10W
	R229	QRSA08J-361YN	RESISTOR	360Ω,1/10W
	R230	QRSA08J-104YN	RESISTOR	100KΩ,1/10W
	R231	QRSA08J-154YN	RESISTOR	150KΩ,1/10W
	C1	QCYA1EK-104	CAPACITOR	0.1μF,25V
	C2	QCSA1HJ-101	CAPACITOR	100pF,50V
	C3	QCFA1CZ-105	CAPACITOR	1μF,16V
	C4	QCSA1HJ-221	CAPACITOR	220pF,50V
	C5	QCSA1HJ-471	CAPACITOR	470pF,50V
	C6	QCSA1HJ-471	CAPACITOR	470pF,50V
	C7	QCSA1HJ-221	CAPACITOR	220pF,50V
	C8	QCFA1CZ-105	CAPACITOR	1μF,16V
	C9	QER60JM-107	E CAPACITOR	100μF,6.3V
	C10	QCYA1EK-103	CAPACITOR	0.01μF,25V
	C12	QCFA1CZ-224	CAPACITOR	0.22μF,16V
	C13	QCYA1EK-103	CAPACITOR	0.01μF,25V
	C14	QCYA1EK-103	CAPACITOR	0.01μF,25V
	C15	QCYA1EK-103	CAPACITOR	0.01μF,25V
	C16	QER60JM-107	E CAPACITOR	100μF,6.3V
	C17	QCYA1EK-103	CAPACITOR	0.01μF,25V
	C18	QCYA1EK-103	CAPACITOR	0.01μF,25V
	C201	QEK60JM-476	E CAPACITOR	47μF,6.3V
	C202	QCFA1HZ-103	CAPACITOR	0.01μF,50V
	C203	QCSA1HJ-681	CAPACITOR	680pF,50V
	C204	QCSA1HJ-150	CAPACITOR	15pF,50V
	C205	QCFA1HZ-103	CAPACITOR	0.01μF,50V
	C206	QCSA1HJ-330	CAPACITOR	33pF,50V
	C207	QCFA1HZ-103	CAPACITOR	0.01μF,50V
	C208	QCSA1HJ-560	CAPACITOR	56pF,50V
	C209	QCSA1HJ-471	CAPACITOR	470pF,50V
	C210	QCSA1HJ-160	CAPACITOR	16pF,50V

#⚠	REF No.	PART No.	PART NAME, DESCRIPTION	
	C211	QCSA1HJ-100	CAPACITOR	10pF,50V
	C212	QCSA1HJ-470	CAPACITOR	47pF,50V
	C213	QCFA1EZ-104	CAPACITOR	0.1μF,25V
	C214	QCSA1HJ-391	CAPACITOR	390pF,50V
	C215	QCVB1CN-103	CAPACITOR	0.01μF,16V
	C216	QER61CM-476	E CAPACITOR	47μF,16V
	C217	QFV11HJ-563	MMT CAPACITOR	0.056μF,50V
	C218	QCFA1HZ-103	CAPACITOR	0.01μF,50V
	C219	QCFA1EZ-104	CAPACITOR	0.1μF,25V
	C220	QCSA1HJ-111	CAPACITOR	110pF,50V
	C221	QCSA1HJ-181	CAPACITOR	180pF,50V
	C222	QCSA1HJ-131	CAPACITOR	130pF,50V
	C223	QCSA1HJ-131	CAPACITOR	130pF,50V
	C224	QCY81EK-104	CAPACITOR	0.1μF,25V
	C225	QCY81EK-104	CAPACITOR	0.1μF,25V
	C226	QCFA1HZ-103	CAPACITOR	0.01μF,50V
	C227	QCFA1HZ-103	CAPACITOR	0.01μF,50V
	C228	QCY81EK-104	CAPACITOR	0.1μF,25V
	C229	QCY81EK-104	CAPACITOR	0.1μF,25V
	C230	QER61AM-685	E CAPACITOR	6.8μF,10V
	C231	QCF81EZ-224	CAPACITOR	0.22μF,25V
	C232	QCFA1HZ-103	CAPACITOR	0.01μF,50V
	C234	QCSA1HJ-180	CAPACITOR	18pF,50V
	C236	QFV11HJ-333	MMT CAPACITOR	0.033μF,50V
	C239	QCSA1HJ-1R0	CAPACITOR	1pF,50V
	C240	QCYA1EK-683	CAPACITOR	0.068μF,25V
⚠	L1	PU48530-101J	COIL	100μH
⚠	L2	PU48530-471J	COIL	470μH
	L201	PU54223-101K	COIL	100μH
	L202	PU59988-560J	COIL	56μH
	L203	PU59988-220JY	COIL	22μH
	L204	PU59988-470J	COIL	47μH
	L205	PU59988-470J	COIL	47μH
	L206	PU59988-121JY	COIL	120μH
	L207	PU59988-330J	COIL	33μH
	L208	PU54223-470K	COIL	47μH
	SLD1	PQ33876-1-1	SHIELD CASE(1), FOR PRE/REC	
	CN1	PU59555-103	CONNECTOR	
	CN201	PU58844-106	CONNECTOR	
	CN202	PU60910-110	CONNECTOR	
	CN203	PU59974-11	CONNECTOR	

#△	REF No.	PART No.	PART NAME, DESCRIPTION	

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DECK TERMINAL BOARD ASSEMBLY <51>

	PWBA	PB10481E-01	DECK TERMINAL BOARD ASSY	
	Q1	PU60625	END SENSOR	
	R3	QRD161J-331	RESISTOR	330Ω,1/6W
	R4	QRD161J-331	RESISTOR	330Ω,1/6W
	R5	QRD161J-331	RESISTOR	330Ω,1/6W
	R8	NTH5D473KB	THERMISTOR	
		or ERT-D2ZHK473S	NEGA THERMISTOR	
		or NTH5D473KA	RESISTOR	
	C1	QCVB1CM-103	CAPACITOR	0.01μF,16V
	PS1	PS5705HR	PH INTERRUPTER	
	PS2	PS5705HR	PH INTERRUPTER	
	CN1	PEMC0722-017	WIRE TRAP	
		or PEMC0753-017	WIRE TRAP	
	CN2	PU60642	CONNECTOR(7PIN)	
	CN3	PU60640	CONNECTOR(4PIN)	

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LOADING MDA BOARD ASSEMBLY <55>

	PWBA2	PB10481A2-01	LOADING MDA BOARD ASSY	
△	IC1	BA6418N	IC	
	C1	QETA1CM-336	E CAPACITOR	33μF,16V
	CN1	PU59555-104	CAP HOUSING	

#△	REF No.	PART No.	PART NAME, DESCRIPTION	

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CASSETTE HOUSING BOARD <56>

	PWB1	PB40061	CASSETTE HOUSING BOARD	
	Q2	PN268VI	PHOTO TRANSISTOR	
	D1	UZ5.1BSB	ZENER DIODE	
		or RD5.1ESB2	ZENER DIODE	
	R1	QRD162J-473	RESISTOR	47KΩ,1/6W
	R2	QRD182J-681	RESISTOR	680Ω,1/8W
	R3	QRD122J-102S	RESISTOR	1KΩ,1/2W
	C1	QCC11EJ-103	CAPACITOR	0.01μF,25V
	PHS3	PU60629	CASSETTE SENSOR	
	TH1	ERT-D2FHJ503S	THERMISTOR	
		or ERT-D2FHK503S	THERMISTOR	
		or PESC1084	NEGA THERMISTOR	
	CN2	PU60639	4PIN SOCKET	

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AUDIO MAIN BOARD ASSEMBLY <74>

	PWBA	PB10668A-01	AUDIO MAIN BOARD ASSEMBLY	
	IC1	XRA15218N	IC	
		or BA15218N	IC	
	IC2	M5223P	IC	
	IC3	M5223P	IC	
	IC201	LA7295	IC	
△	Q1	2SC1740S(RS)	TRANSISTOR	
	Q2	2SC1740S(RS)	TRANSISTOR	
		or 2SC3199(GB)-TJK	TRANSISTOR	
	Q201	2SC1740S(RS)	TRANSISTOR	
		or 2SC3199(GB)-TJK	TRANSISTOR	
	Q202	2SC1740S(RS)	TRANSISTOR	
		or 2SC3199(GB)-TJK	TRANSISTOR	
	Q203	DTA144ES	TRANSISTOR	

#⚠ REF No.	PART No.	PART NAME, DESCRIPTION	
Q204	DTA114ES	TRANSISTOR	
Q205	DTA114ES	TRANSISTOR	
D1	1SS133	DIODE	
	or MA165	DIODE	
D2	1SS133	DIODE	
	or MA165	DIODE	
D3	1SS133	DIODE	
	or MA165	DIODE	
D4	1SS133	DIODE	
	or MA165	DIODE	
D5	1SS133	DIODE	
	or MA165	DIODE	
D201	1SS133	DIODE	
	or MA165	DIODE	
R1	QRD161J-102	RESISTOR	1KΩ,1/6W
R2	QRD161J-101	RESISTOR	100Ω,1/6W
R4	QRD161J-472	RESISTOR	4.7KΩ,1/6W
R5	QRD161J-472	RESISTOR	4.7KΩ,1/6W
R6	QRD161J-682	RESISTOR	6.8KΩ,1/6W
R7	QRD161J-182	RESISTOR	1.8KΩ,1/6W
R8	QRD161J-241	RESISTOR	240Ω,1/6W
R9	QRD161J-393	RESISTOR	39KΩ,1/6W
R10	QRD161J-393	RESISTOR	39KΩ,1/6W
R11	QRD161J-183	RESISTOR	18KΩ,1/6W
R12	QRD161J-183	RESISTOR	18KΩ,1/6W
R13	QRD161J-103	RESISTOR	10KΩ,1/6W
R14	QRD161J-562	RESISTOR	5.6KΩ,1/6W
R15	QRD161J-332	RESISTOR	3.3KΩ,1/6W
R16	QRD161J-393	RESISTOR	39KΩ,1/6W
R17	QRD161J-221	RESISTOR	220Ω,1/6W
R18	QRD161J-273	RESISTOR	27KΩ,1/6W
R19	QRD161J-273	RESISTOR	27KΩ,1/6W
R22	QRD161J-223	RESISTOR	22KΩ,1/6W
R23	QRD161J-223	RESISTOR	22KΩ,1/6W
R24	QRD161J-102	RESISTOR	1KΩ,1/6W
R25	QRD161J-103	RESISTOR	10KΩ,1/6W
R26	QRD161J-102	RESISTOR	1KΩ,1/6W
R27	QRD161J-102	RESISTOR	1KΩ,1/6W
R28	QRD161J-562	RESISTOR	5.6KΩ,1/6W
R29	QRD161J-562	RESISTOR	5.6KΩ,1/6W
R30	QRD161J-333	RESISTOR	33KΩ,1/6W
R31	QRD161J-333	RESISTOR	33KΩ,1/6W
R32	QRD161J-124	RESISTOR	120KΩ,1/6W
R33	QRD161J-124	RESISTOR	120KΩ,1/6W
R34	QRD161J-123	RESISTOR	12KΩ,1/6W
R35	QRD161J-562	RESISTOR	5.6KΩ,1/6W
R36	QRD161J-103	RESISTOR	10KΩ,1/6W
R37	QRD161J-823	RESISTOR	82KΩ,1/6W
R38	QRD161J-682	RESISTOR	6.8KΩ,1/6W
R39	QRD161J-680	RESISTOR	68Ω,1/6W
R40	QRD161J-103	RESISTOR	10KΩ,1/6W
R41	QRD161J-123	RESISTOR	12KΩ,1/6W
R42	QRD161J-562	RESISTOR	5.6KΩ,1/6W

#⚠ REF No.	PART No.	PART NAME, DESCRIPTION	
R43	QRD161J-103	RESISTOR	10KΩ,1/6W
R44	QRD161J-823	RESISTOR	82KΩ,1/6W
R45	QRD161J-682	RESISTOR	6.8KΩ,1/6W
R46	QRD161J-680	RESISTOR	68Ω,1/6W
R47	QRD161J-103	RESISTOR	10KΩ,1/6W
R48	QRD161J-102	RESISTOR	1KΩ,1/6W
R49	QRD161J-102	RESISTOR	1KΩ,1/6W
R50	QRD161J-151	RESISTOR	150Ω,1/6W
R51	QRD161J-151	RESISTOR	150Ω,1/6W
R52	QRD161J-103	RESISTOR	10KΩ,1/6W
R53	QRD161J-103	RESISTOR	10KΩ,1/6W
R201	QRD161J-473	RESISTOR	47KΩ,1/6W
R202	QRD161J-6R8	RESISTOR	6.8Ω,1/6W
R203	QRD161J-393	RESISTOR	39KΩ,1/6W
R204	QRD161J-8R2	RESISTOR	8.2Ω,1/6W
R205	QRD161J-223	RESISTOR	22KΩ,1/6W
R207	QRD161J-471	RESISTOR	470Ω,1/6W
R208	QRD161J-181	RESISTOR	180Ω,1/6W
R209	QRD161J-274	RESISTOR	270KΩ,1/6W
R210	QRD161J-103	RESISTOR	10KΩ,1/6W
R211	QRD161J-103	RESISTOR	10KΩ,1/6W
R212	QRD161J-102	RESISTOR	1KΩ,1/6W
R213	QRD161J-475	RESISTOR	4.7MΩ,1/6W
R214	QRD161J-103	RESISTOR	10KΩ,1/6W
R215	QRD161J-223	RESISTOR	22KΩ,1/6W
R216	QRD161J-223	RESISTOR	22KΩ,1/6W
R217	QRD161J-102	RESISTOR	1KΩ,1/6W
R218	QRD161J-682	RESISTOR	6.8KΩ,1/6W
R219	QRD161J-333	RESISTOR	33KΩ,1/6W
R220	QRD161J-181	RESISTOR	180Ω,1/6W
R221	QRD161J-331	RESISTOR	330Ω,1/6W
R222	QRD161J-392	RESISTOR	3.9KΩ,1/6W
R223	QRD161J-332	RESISTOR	3.3KΩ,1/6W
R227	QRD161J-153	RESISTOR	15KΩ,1/6W
R228	QRD161J-102	RESISTOR	1KΩ,1/6W
C1	QETC1CM-476	E CAPACITOR	47μF,16V
C3	QETC1HM-225	E CAPACITOR	2.2μF,50V
C4	QETC1HM-225	E CAPACITOR	2.2μF,50V
C5	QETC1AM-476	E CAPACITOR	47μF,10V
C6	QETC1AM-476	E CAPACITOR	47μF,10V
C7	QETC1CM-106	E CAPACITOR	10μF,16V
C8	QETC1CM-106	E CAPACITOR	10μF,16V
C9	QETC1CM-106	E CAPACITOR	10μF,16V
C10	QETC1CM-106	E CAPACITOR	10μF,16V
C11	QEK61HM-105	E CAPACITOR	1μF,50V
C12	QEK61HM-105	E CAPACITOR	1μF,50V
C13	QEK61HM-105	E CAPACITOR	1μF,50V
C14	QEK61EM-475	E CAPACITOR	4.7μF,25V
C15	QCBB1HJ-561	CAPACITOR	560pF,50V
C17	QETC1CM-476	E CAPACITOR	47μF,16V
C18	QEK61CM-476	E CAPACITOR	47μF,16V
C19	QEK61HM-105	E CAPACITOR	1μF,50V
C20	QCC11EJ-104	CAPACITOR	0.1μF,25V
C21	QETC1AM-336	E CAPACITOR	33μF,10V

#⚠ REF No.	PART No.	PART NAME, DESCRIPTION	
C22	QCC11EJ-104	CAPACITOR	0.1μF,25V
C23	QETC1AM-336	E CAPACITOR	33μF,10V
C24	QETC0JM-107	E CAPACITOR	100μF,6.3V
C25	QETC1AM-476	E CAPACITOR	47μF,10V
C26	QETC1AM-476	E CAPACITOR	47μF,10V
C201	QCBB1HJ-331	CAPACITOR	330pF,50V
C202	QFLC1HJ-223Z	M CAPACITOR	0.022μF,50V
C203	QETC1CM-106	E CAPACITOR	10μF,16V
C204	QCC11EJ-102	CAPACITOR	0.001μF,25V
C205	QCC11EJ-102	CAPACITOR	0.001μF,25V
C206	QFLC1HJ-333Z	M CAPACITOR	0.033μF,50V
C207	QETC1CM-106	E CAPACITOR	10μF,16V
C208	QCC11EJ-102	CAPACITOR	0.001μF,25V
C209	QCC11EJ-102	CAPACITOR	0.001μF,25V
C210	QCC11EJ-223	CAPACITOR	0.022μF,25V
C211	QCC11EJ-102	CAPACITOR	0.001μF,25V
C212	QCC11EJ-152	CAPACITOR	0.0015μF,25V
C213	QETC1HM-474	E CAPACITOR	0.47μF,50V
C214	PU60550-105	E CAPACITOR	1μF
C215	QETC1CM-226	E CAPACITOR	22μF,16V
C216	QFLC1HJ-123Z	M CAPACITOR	0.012μF,50V
C217	QETC1HM-105	E CAPACITOR	1μF,50V
C218	QETC1CM-106	E CAPACITOR	10μF,16V
C219	QETC1CM-476	E CAPACITOR	47μF,16V
C220	QETC1HM-105	E CAPACITOR	1μF,50V
C221	QFLC1HJ-183Z	M CAPACITOR	0.018μF,50V
C222	QFLC1HJ-393Z	M CAPACITOR	0.039μF,50V
C224	QETC1HM-335	E CAPACITOR	3.3μF,50V
C225	QCXB1CM-472	CAPACITOR	0.0047μF,16V
L1	PELN0530-101JZ	COIL	100μH
L2	PELN0530-101JZ	COIL	100μH
L201	PU58308-103J	COIL	10mH
⚠ T201	PU60303	OSC TRANSFORMER	
⚠ T202	PU60304	OSC TRANSFORMER	
CL1	PEME0802	CLAMP	
SLD1	PU59960	P/R AMP SHIELD1	
SLD2	PU59962	P/R AMP SHIELD3	
CN1	PU59555-4	CONNECTOR	
CN2	PU60910-9	WIRE TRAP	
CN3	PU59555-3	CONNECTOR	
CN4	PEMC0949-003	HOUSING, (1-3PIN)	
CN5	PU58844-5	CONNECTOR	
CN6	PU60910-5	CONNECTOR	
CN7	PEMC0949-003R	HOUSING	
CN8	PEMC0949-007	HOUSING	
CN9	PU60910-4	CONNECTOR	
CN10	PU59555-5	CONNECTOR	

#⚠ REF No.	PART No.	PART NAME, DESCRIPTION
CN201	PEMC0949-004R	HOUSING
CN202	PEMC0949-002	HOUSING
CN203	PEMC0949-002	HOUSING
CN204	PU58844-2	CONNECTOR
⚠ CP1	ICP-N10	CIRCUIT PROTECTOR
⚠ CP201	ICP-N10	CIRCUIT PROTECTOR

SECTION 6
TECHNICAL INFORMATION

6.1 CPU PIN FUNCTIONS

1. MECHACON CPU pin function (IC601)

Pin No.	Label	IN/OUT	Contens
1	Vcc	—	For the SYSTEM CONTROL, DC 5V (AL 5V)
2	Vref		
3	START SENS	I	LEADER TAPE DETECT (DET ON: L)
4	CASS SENS	I	CASSETTE IN/OUT DETECT (DET ON: L)
5	AVG FM	I	AUTO TRACKING DATA INPUT
6	THERM		THERMIC CORRECTION (CAPSTAN BRAKE TIMING CONTROL)
7	MODE SENS A		MECHANISM MODE DETECT
8	MODE SENS B		
9	MODE SENS C		
10	L CM 1		LOADING MOTOR CONTROL
11	LCM 2		
12	APT CTL	I	PICTURE CONTROL
13	CAP. V CTL	O	CAPSTAN MOTOR DRIVE VOLTAGE SERVO
14	DRUM . V CTL		DRUM MOTOR DRIVE VOLTAGE SERVO
15	REC SAFETY		DETECTS ERASE PROTECT TAB (TAB ABSENT: H)
16	SYNC DET		INPUT SIGNAL DETECT
17	DRUM F/F	I	REC TIMING CONTORL, DRUM ROTATION DETECT (25 Hz)
18	CTL PULSE	I	MODE DETECT (SP/LP), BLANK DETECT
19	CAP REV	O	CAPSTAN ROTATION CONTROL (REV: L)
20	V. P CTL	O	V PULSE CONTROL
21	HEAD SELECT	O	HEAD SELECT SIGNAL OUTPUT
22	V UP	O	CAPSTAN ROTATION SPEED CONTORL
23	REEL FG (SP)	I	REEL ROTATION DETECT/TAPE REMAIN
24	REEL FG (TU)		
25	END SENS		TRAILER TAPE DETECT (DET ON: L)
26	CAP FG	I	MODE (SP/LP) DETECT/BACK SPACE COUNT
27	CN Vss		GND
28	RESET		RESET AT CONNECT VCR TO AC
29	X OUT	O	MAIN SYSTEM CLOCK
30	X IN	I	
31	Ø	—	NC
32	Vss	—	GND
33	R PAUSE	I	REMOTE PAUSE CONTROL (PAUSE ON: L)
34	NC	—	NC
35	INDEX	I/O	INDEX DATA WRITE/DETECT
36	S. DATA	O	SERVO CONTROL DATA OUTPUT (16 BIT)
37	S/M/P CLK	O	DATA TRANSFER CLOCK
38	M DATA	I/O	MEMORY IC CONTROL (DATA READ/WRITE)
39	M CE	O	MEMORY IC CHIP ENABLE
40	A/M/S	O	HEAD SELECT SIGNAL OUTPUT (AUTO:M/MANUAL:H/SLOW AND STILL:L)
41	P MUTE	O	PICTURE MUTE CONTROL (MUTE ON: L)
42	REC START	O	REC START: L
43	A ERASE	O	AUDIO ERASE HEAD ON: L
44	NC	—	NC
45	H REC ST	O	HiFi REC START: L
46	AI CLK	O	
47	AI DATA	O	
48	N DET	O	NOISE DETECT (DET ON: L)
49	AC CLK	O	
50	AC DATA	O	
51	A MUTE	I/O	MEMORY IC CONTROL (DATA READ/WRITE)
52	REAR	O	INPUT SIGNAL SELECT
53	TU CTL	O	TUNER MODE: H
54	V MUTE	O	VIDEO MUTE CONTORL (MUTE ON: H)
55	PLL DATA	O	TUNING DATA OUTPUT
56	DEM MUTE	O	DEMOD MUTE CNTROL (MUTE ON: H)
57	DEM CLK	O	DATA TRANSFER CLOCK
58	DEM DATA	O	DEMOD CONTORL DATA
59	LOCK DET	I	TUNIG CHECK DATA
60	P CTL	O	POWER CONTORL (P. ON: L)
61	SERVO		CAPSTAN MOTOR SERVO (SERVO MODE: H)
62	T. CLK	O	DATA TRANSFER CLOCK
63	T. DATA	I/O	M-CTL/TIMER CPU BUS DATA (16 BIT SERIAL)
64	PAUSE	O	CAPSTAN MOTOR SERVO

Table 6-1-1 MECHACON CPU pin function

2. TIMER CPU pin function (IC1)

PIN NO.	LABEL	IN/OUT	NOTE
1	Sd	OUT	KEY SCAN PULSE OUTPUT
2	Sc	OUT	KEY SCAN PULSE OUTPUT
3	Sb	OUT	KEY SCAN PULSE OUTPUT
4	Sa	OUT	KEY SCAN PULSE OUTPUT
5	POWER DOWN	IN	POWER DOWN DETECT (POWER DOWN: L)
6	DISP/OS CLOCK	OUT	DISPLAY/ON SCREEN DATA TRANSFER CLOCK
7	DISP/OS DATA	OUT	DISPLAY/ON SCREEN SERIAL DATA
8	TEST	IN	TEST POINT (CLOCK ADJUST/FDP CHECK)
9	REMOTE	IN	16BIT REMOTE DATA
10	NC	—	GND
11	CNT PLS	IN	LINEAR TIME COUNTER DATA
12	CNT PLS	IN	LINEAR TIME COUNTER DATA
13	KS 0	IN	KEY SCAN DATA INPUT
14	KS 1	IN	
15	KS 2	IN	
16	KS 3	IN	
17	M/C DATA	IN/OUT	MECHACON/TIMER SERIAL DATA
18	M/C CLOCK	OUT	MECHACON/TIMER DATA TRANSFER CLOCK
19	SDA	IN/OUT	VIDEO PROGRAM SYSTEM SERIAL DATA
20	SCL	OUT	VIDEO PROGRAM SYSTEM DATA TRANSFER CLOCK
21	OS CS	OUT	ON SCREEN IC CHIP SELECT: L
22	OS RESET	OUT	ON SCREEN IC RESET: L
23	DISP CE	OUT	DISPLAY IC CHIP ENABLE
24	REAR	IN	INPUT SIGNAL SELECT
25	POWER LED	IN	POWER LED ON: H
26	AUDIO INT	OUT	AUDIO CONTROL IC CHIP SELECT
27	AUDIO CLK	OUT	AUDIO CONTROL SERIAL DATA TRANSFER CLOCK
28	PROG	IN	BLUE BACK MODE: H
29	NC	—	NC
30	X1	IN	MAIN SYSTEM CLOCK (4.19 MHz)
31	X2	OUT	
32	Vss	—	GND
33	XT1	IN	GND
34	NC	—	NC
35	JS/B	—	NOT USED
36	SHUTTLE	—	NOT USED
37	JS/A	—	NOT USED
38	AUD DATA	OUT	AUDIO CONTORL SERIAL DATA
39	RESET	IN	RESET AT CONNECT VCR TO AC
40	NC	—	NC
41	NC	—	
42	NC	—	
43	NC	—	
44	NC	—	
45	NC	—	
46	NC	—	
47	NC	—	
48	NC	—	
49	NC	—	
50	NC	—	
51	So	OUT	KEY SCAN PULSE OUTPUT
52	Sn	OUT	
53	Sm	OUT	
54	Sl	OUT	
55	Sk	OUT	
56	V LOAD	—	GND
57	V PRE	—	GND
58	Sj	—	NOT USED
59	Si	—	NC
60	Sh	OUT	KEY SCAN PULSE OUTPUT
61	Sg	OUT	
62	Sf	OUT	
63	Se	—	NC
64	V_{DD}	IN	UNSW 5V

Table 6-1-2 TIMER CPU pin function